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February 457

HIGH TIMES

2014 HYDRO REPORT

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HIGH TIMES FEBRUARY



“While hydroponic growing is a powerful tool for cannabis growers, there are some fundamentals that need to be followed for success.”

—The 2014 Hydro Report, page 80

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With the rising popularity of concentrates, consumers are searching for the ideal gear for dabbing. We've got you covered in our review of the hottest rigs on the market! *By Dan Skye*

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Nico Escondido explores Dutch methods for increasing yields through understanding plant science and applying techniques developed specifically by and for indoor growers.

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Soilless growing requires precision and proper planning. Our cultivation experts break down the necessary techniques and equipment you'll need to grow hydroponic marijuana successfully.

89 How to Open a Pot Dispensary

Thinking of starting a marijuana business now that Colorado's gone legal? Navigating the

state's pot regulations and seed-to-sale laws are tougher than you might think. Managing editor Jen Bernstein gets an educational tour of The Clinic to see how it's done.

98 Inside the Anti-Pot Illuminati

Last September, an elite group of pot prohibitionists met to discuss strategies for reversing the progress that medical and recreational marijuana have made toward legitimacy. One lone dope journalist attempted to crash the party. *By Chris Simunek*

104 High Times Interview: Jorge Cervantes

Over the past 30 years, probably no single person has contributed more to spreading valuable information about the cultivation of a plant that humans have used for thousands of years. Not surprisingly, *High Times* awarded Jorge Cervantes with our Lifetime Achievement Award in Amsterdam in 2013.

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HIGH TIMES DIGITAL



Glass artist Darby Holm has been immortalized by artist Tara Stanley.

► Glass Artist of the Month

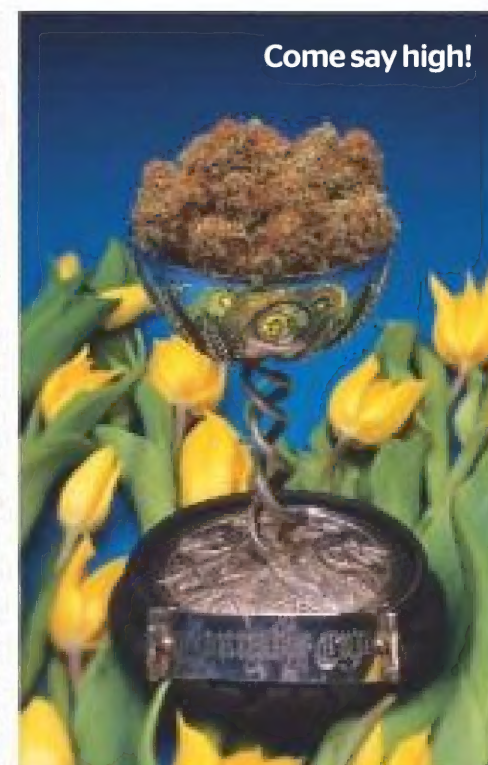
"I was forged from the heart of an oak tree and born deep in the Bigfoot country of southern Oregon!" So says Darby Holm, one of the genuine stars in the glass artist community. Moreover, he says it was his destiny to become a self-sustaining artist. That meant diving into the stereotypical life of a "starving artist," with little to no income. But Darby says he learned fast and found his way by doing odd jobs to support his addiction to creating paintings on windows or detailing accents on cars. He even dabbled in T-shirt designs. Basically, his art encompassed whatever he thought was "cool at the time."

When he came in contact with the burgeoning glass smokeware industry in the mid '90s, he took to it "like a moth to a flame." He couldn't look away.

April 5, 1996—Darby remembers the date well. That's when he lit his torch for the first time under the guidance of his younger brother Carsten Carlile, our Oct. '13 Glass Artist of the Month.

Darby discovered that the glass world is wide open, an artistic playground to explore as he pleases. He says, "I thank our incredible community of like-minded and equally talented family and friends. I've watched this industry grow into something I am very proud to be a part of today."

Check out Darby's work at hightimes.com/glass.



► Cannabis Cup 2014

It's the 40th birthday of *High Times* magazine! And with the proliferation of the High Times Cannabis Cup across the land, we've launched a brand new website dedicated to keeping you updated on all of our events.

This year, the Cannabis Cup will hit four major urban centers—San Bernardino, Denver, San Francisco and Seattle. And, of course, we'll end our banner year as always in Amsterdam for our 27th Cannabis Cup.

Check out photo galleries, videos, and highlights of last year's events and get ready for the Cannabis Cup in your area.

Visit cannabiscup.com



Miss February 2014

NAME: **Bridget**
PROFILE: **420greengoddess**
AGE: **20**
CITY: **Fresno, CA**
OCCUPATION: **Pipe distributor**

To enter or rate contestants, go to misshightimes.com. You must be 18 years or older to enter.

TARA STANLEY: JERRY KRECICKI

POT POLL

First Edible Experience?

Everyone always remembers their first experience ingesting marijuana. Many people report that it was a transcendent experience. Others—not so much. What was your first time with an edible like? With over 1,200 responses, it's clear that most people enjoyed the effects of edibles with 73 percent reporting that it was life changing, pleasant or fun. As for the rest, may we suggest that it's a good idea for the industry to be strict about dosages, so no one's disappointed or unnecessarily disoriented.

Cast your vote in our latest poll online!



Edible effects vary for stoners.

Life Changing...**16%**
Paranoiac...**3%**
Pleasant...**31%**
Scary...**4%**

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Jen Bernstein goes behind the trimming scene at The Clinic and visits with her friend Sammy Saltzman.

Grow For It!

As *High Times'* managing editor, I am *not* responsible for writing the articles that go into making this magazine. Rather, it's my job to spend my days leading editorial and planning meetings; keeping our staff of editors and writers organized; and harassing the Danny Dankos, Nico Escondidos and Bobby Blacks of this world *to turn in their stories!*

Despite our relaxed (yet professional!) atmosphere, we get the job done—and, like clockwork, the next great issue of *High Times* arrives in your mailbox or at your newsstand brimming with the latest advances in grow technology, the best new ways to get high, the most recent developments in pot politics, and whatever else is on the verge for the miracle plant.

I love making magazines, and over the two years that I've been working at *High Times*, I've consumed a lot of information (not to mention weed!) and have acquired a massive education in how to grow. But nothing can ever replace firsthand experience, so after visiting The Clinic's growrooms in Denver, I knew I had to write and share my experience with you.

What was originally a profile on trimmers turned into a larger business feature on "How to Open a Pot Dispensary" (page 89) once I sat down with Ryan Cook, general manager of The Clinic, and learned the enormous amount of work that goes into growing medicine. Turns out that even though Colorado has legalized pot, how to go about legitimately selling it retail is a whole other story. If you're interested in learning the nitty-gritty of the state's seed-to-sale program—and some other fun facts straight from the mouth of a multiple Cannabis Cup champion—then read on! All the knowledge that I absorbed can be passed on to you via the magazine you're holding in your hands right now.

What do I know? Maybe all the hoops and red tape that Colorado has set up are helping to create a rigorous and healthy cannabusiness environment that might be worth your investment. And if you're considering moving to Colorado and joining the legal marijuana industry taking root there, then I'd say: *Go for it.*

Happy growing and happy reading!

Jen Bernstein
Managing Editor

HIGH TIMES

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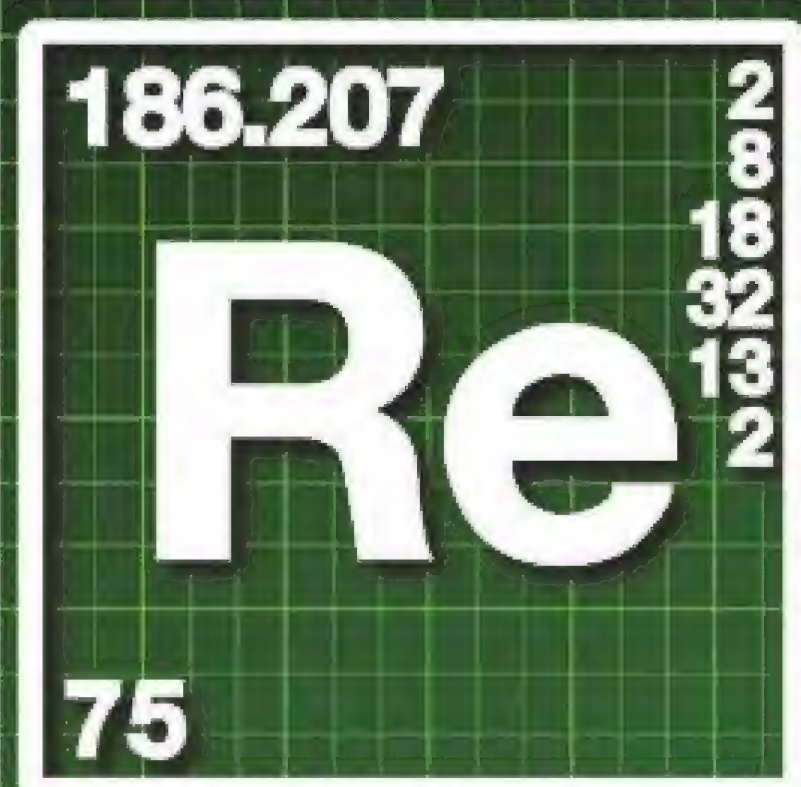
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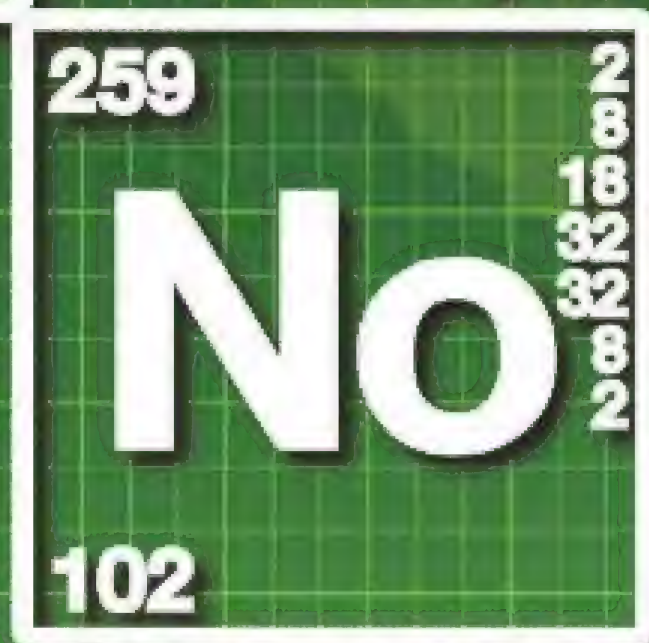
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Now



Buds in Bulgaria

I like your magazine very much—hats off to the great job you do!

I am writing this letter from Bulgaria, a country on the Balkan Peninsula—small, yet with extremely beautiful nature. I have solid experience growing plants; a year down the line, though, I spend my time in a grow-shop company. The company has been in the Bulgarian marketplace for a few months now. The work we do is charged with positive energy, despite the fact that my motivation for starting it was that a friend of mine was caught with one joint and treated like a dangerous criminal.

I am astonished by how little information is reaching the people here in regard to cases such as this one. On the other hand, I see now that they are ready to make history, to innovate and behave positively. I truly believe they are ready. What the people need for this to happen is more information about marijuana—especially of a technical nature—and so I have arrived at the conclusion that that we need a Bulgarian edition of *High Times*!

Kevin

Thanks, Kevin—it sounds like there are some interesting developments taking root and growing in your country. But while we can't print a Bulgarian-language edition of *High Times* (yet!), our website, hightimes.com, has tons of information that can be easily translated via translate.google.com, and we also have a digital edition that's available to anyone in the world at ht.420.com/HTbackissues.

Read Between the Lines

For the past few years, Americans have been wrestling with the question of legalizing marijuana. Many Americans are now in favor despite the fact that a lot of them haven't even tried it. This is a seriously good thing. On September 10, 2013, the US Senate had a hearing in response to Attorney General Eric Holder stating that the federal government would not interfere with state legalization laws. This was a tremendous step forward in ending marijuana prohibition—mainly because it shows that the federal marijuana ban will not last much longer. If you read between the lines, you will see that in order for our government to tax weed and allow dispensaries to utilize the banking system, it has to lift that ban. Plus, within the next four years, 10 more states are likely to legalize—and on top of that, we have even *John McCain* supporting legalization.

This avalanche of support may have



Working in a smoke shop, I am privy to many pot-related anecdotes, and waaaay too many of the “horror stories” begin with: “I was driving along, smoking a bowl...”

finally gotten us to a place that, a few years ago, many people only dreamed about. It just goes to show that no matter what gets thrown our way, we should never give up. We, the people, are free to be baked in our homes with our Cheetos!

Anonymous

Don't Smoke and Drive!

Many, many thanks and kudos to Allen St. Pierre for his “Marijuana Is Still Illegal” article in the October '13 issue. His first bit of advice is crucial, and I wouldn't mind seeing it repeated in every issue of *High Times*: Don't smoke and drive! Working in a smoke shop, I am privy to many pot-related anecdotes, and *waaaay* too many of the “horror stories” begin with: “I was driving along, smoking a bowl” I know it's hard—that drive to work is long and boring—but the cops are just waiting to pull you over and ask what the smell is. Don't give them that chance! And if you do get pulled over, never admit to anything: That old cop trick—“I'll go easier on you if you just be honest and give me the weed now”—is one of the oldest in their book. Don't do their job for them.

Khris

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We Rock

I am a cannabis activist here in San Francisco, CA. I just want to thank you for putting out a fantastic piece of journalism: the November 2013 edition of *High Times*! You guys rock!

I especially enjoyed reading Danny Danko's piece on great grow boxes and the article by Russ Belville entitled “A Level Playing Field”—about the travesty of testing professional athletes for marijuana and barring them from competing just for using their medicine. Should they be barred for using other types of medicine as well, like asthma inhalers or headache pills? I personally suffered from severe and unrelenting migraine headaches for 25 years—until I enjoyed my first taste of medical marijuana. Two little puffs were all it took to wipe my headaches out.

Please keep listing ads from marijuana-seed suppliers, because the key to eventual *re*-legalization is for more people to learn how to grow this wonderful plant, and then to plant it *everywhere*.

Conrad

Maybe Cut Back on the 'Shrooms a Bit

I think I can't decide if it's good to take 14 grams of 'shrooms. I do think it's a good idea to smoke pot, though.

I could tell the shit was about to hit the fan from the news clips on the Shroomery. Thanks for the great issue. I look forward to toking again one day, though maybe not as much as before—maybe just a fat joint a few times a week.

I've been watching a lot of crime documentaries on YouTube. (By the way, Rick Cusick does a great job of explaining how cannabis smoking works!) My favorite was the Pablo Escobar one. At the end came the part I was waiting for: They said that now the FARC runs all the cocaine. We had the great idea on the Shroomery of legalizing coca leaf. No one dies from it, and people seem to enjoy it. I've also been watching a lot of kung fu movies.

My friend used to tell me that smoking pot just makes you *think* you're better, but in fact it *makes* you better. It's one of my best teachers.

Mikey N

Correction

The review of *A Boy and His Dog* on page 32 of the November 2013 issue was written by Michael Simmons, not Mark Miller.



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**Contact
High**

DUTCH MASTERS There's more to Amsterdam than their forward-thinking liberalism. Holland is the forefather of modern-day indoor marijuana horticulture. The techniques deployed around the world today were born decades ago in Dutch greenhouses. Learn how the philosophy of "outside in" spurred a global grow revolution on page 60. *Photo by Nico Escondido*



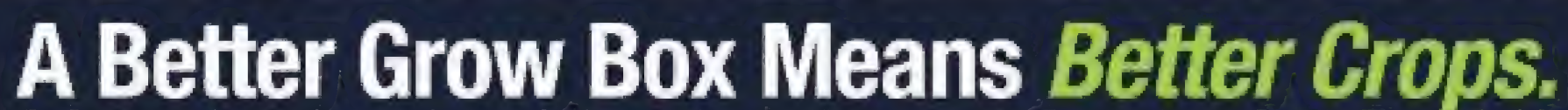


**Contact
High**

HYDRO REPORT Dialing in a hydroponic marijuana cultivation system results in explosive plant growth rates and heavy harvests of massive dense buds. Learn how to become a hydro master in our yearly report on all things soilless starting on p 71. *Photo by Lochfoot*







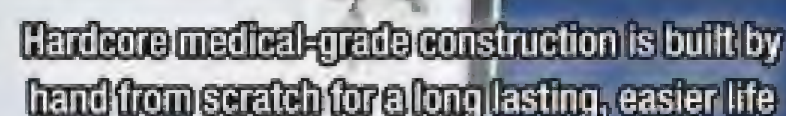
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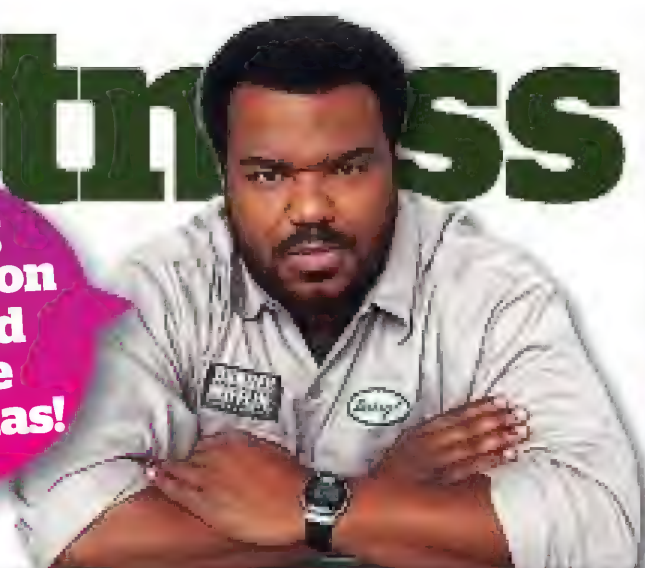
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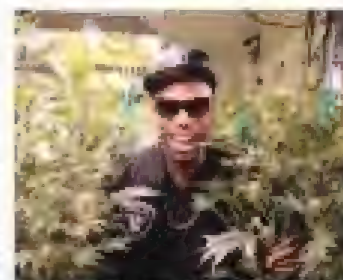
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Entertainment

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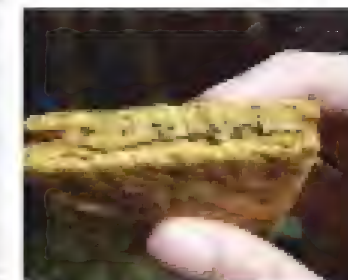
Hanging out with a rapper on the rise. p.27



Food

Phat Firecrackers

Put some pop in your tasty pot treats! p.34



A positive marijuana test tells us nothing about whether a pilot, driver or conductor was high on the job.

The Drug-Testing Scam

Once sold as a public-safety measure, drug tests now serve to enforce social disapproval of cannabis use even as they enrich the drug-testing industry, inflate rehab statistics, and indoctrinate children in a culture of surveillance and control. *By Russ Belville*

In Pennsylvania, Christopher McDougall's 11-year-old daughter was barred from joining the school orchestra. The reason? He wouldn't allow the school district to collect a cup of the sixth-grader's urine to test for drug metabolites. The ACLU has sued Pennsylvania, since a 2003 State Supreme Court decision requires some specific indication of drug activity before schoolchildren can be required to take a drug test. Nobody seems to think the Swift Middle School orchestra in central Pennsylvania is producing the next Tony Montana, Pablo Escobar or Walter "Heisenberg" White among its crop of sixth-graders, but that hasn't stopped the school from requiring any child who

wishes to participate in extracurricular activities to submit to the whiz quiz.

Testing the urine of children who merely wish to participate in a school activity, like the band or chess club, is a far cry from the original justification we were given for surrendering our Fourth Amendment rights to employers. In the late 1980s, drug testing was sold to us as a tool for ensuring public safety, following a well-publicized 1987 train crash in Baltimore in which the Amtrak engineer killed in the accident tested positive for marijuana. The 1988 Drug-Free Workplace Act provided the impetus for employers to begin voluntary "suspicionless" testing of potential new hires, as

well as the voluntary random testing of current workers. (Naturally, "voluntary" in this case means "assuming you want to stay employed.")

By 1991, Congress authorized mandatory drug testing for anyone involved in a "safety-sensitive" job covered by the Department of Transportation (an agency which, to this day, maintains that a positive marijuana test tells us nothing about whether a pilot, driver or conductor was high on the job).

By 1995, the Vernonia School District in Oregon had implemented drug testing for all high-school and junior-high athletes, citing the need for student safety in potentially risky athletic competitions. The

« Supreme Court upheld the district's right to test kids, even though the drug "epidemic" Vernonia cited as justification consisted of just 12 positive tests over more than four years. These days, because of a series of court rulings, schools are free to impose drug testing on students as young as 11 years old for anything beyond simple class attendance. Some high schools even require drug tests to get a permit for parking at school.

The drug-testing business is a profitable one. Exact figures are hard to come by, but the drug-testing industry is easily a multibillion-dollar operation. The Drug and Alcohol Testing Industry Association, or DATIA, represents some 1,200 drug-testing companies and retains a lobbying firm in Washington, DC. Having convinced most employers and many schools to use their clients' products, the lobbyists from DATIA and other industry supporters are now targeting state governments, spending hundreds of thousands of lobbying dollars to convince lawmakers to require drug testing for most forms of public assistance. (Ironically, in states where the programs are already in place, more taxpayer dollars are being spent on drug testing than is saved by denying benefits to those who failed the test.)

More taxpayer dollars are being spent on drug testing than is saved by denying benefits to those who failed the test.

Recently, there have also been well-publicized cases of mismanagement and malfeasance at drug-testing laboratories. One Boston lab was run by a woman alleged to have tampered with—or even outright faked—drug-test results in cases that could potentially involve more than 40,000 defendants over her nine years of employment. In Houston, nearly 5,000 convictions could be affected by a crime-lab tech who faked test results. In San Francisco, one drug-testing lab was ordered to close after an employee was caught skimming painkillers and cocaine from the evidence supply for herself.

Drug testing is also the linchpin of the new "kinder, gentler Drug War" strategies promoted by Kevin Sabet and Project SAM (the misnamed "Smart Approaches to Marijuana"). SAM promotes the use of so-called drug courts—which have expanded from a dozen or so at the start of the 1990s to over 2,700 today—to evaluate busted marijuana users, who are given the "choice" of prison or drug rehab. In

these rehabs, pot smokers are drug-tested under the threat of going to jail if they test positive. It's no wonder that so many of these "addicts" then successfully complete their drug-court-ordered program. The huge number of (non-addicted) tokers who make up the client population of these programs boosts the success-rate statistics of both the rehabs and the drug courts. Then the drug-testing industry points to those figures as a selling point for—you guessed it—*more* drug testing.

Fifty years ago, Dr. Martin Luther King Jr. famously said that he dreamed of the day that his children would be judged not by the color of their skin, but by the content of their character. I doubt he envisioned the day that his grandchildren's eligibility for employment, or his great-grandchildren's fitness for playing violin at school, would be judged by the content of their urine. ✱

Listen to Russ Belville's radio show at radicalruss.com.

HIGH FIVE

GOP for THC

Contrary to popular opinion, not every Republican opposes pot legalization. *By Mark Miller*



Rep. Dana Rohrabacher (CA)
In April, Rohrabacher introduced HR 1523, the Respect State Marijuana Laws Act of 2013, a bipartisan bill intended to stop the Feds from prosecuting pot users and providers in states with legalization or medi-pot laws. We'll also give a shout-out to Rohrabacher's fellow GOPers Justin Amash (MI) and Don Young (AK), both hailing from medical states, who went against party lines in co-sponsoring the bill.



Sen. Rand Paul (KY)
The Tea Party poster boy earned civil-liberty accolades when he declared at a packed public hearing of the Senate Judiciary Committee that the War on Drugs is the modern-day equivalent of "Jim Crow laws," because drug convictions prevent a third of African-American males from voting in elections. Despite the fact that Paul doesn't think highly of marijuana users, he still doesn't want to see them incarcerated.



State Sen. Jim Oberweis (IL, 25th District)
Oberweis courageously defied the majority of his fellow Illinois Republicans when he voted in favor of the state's medical marijuana bill, which was signed into law in August. Oberweis explained his support with a simple rhetorical question: "The bottom line is, who am I to say that [patients] shouldn't be allowed to use [cannabis] if, in fact, that will help them?"



State Sen. Michael Baumgartner (WA, 6th District)
In 2012, when Baumgartner endorsed Initiative 502, which legalized recreational pot use in Washington State, he was in the middle of a US Senate race. This made him the first—and only—candidate running for statewide office in Washington to publicly support the legalization initiative. Baumgartner lost the election to his Democratic challenger, but he gained much respect.



Tom Tancredo
The former five-term US representative from Colorado ran in the Republican presidential primary in 2008, then in the Colorado governor's race as the American Constitution Party's candidate in 2010. Now he's back on board with the GOP and will run for gov again in 2014. Though he wasn't running for office in 2012, Tancredo nevertheless endorsed Amendment 64, which legalized recreational pot in Colorado.

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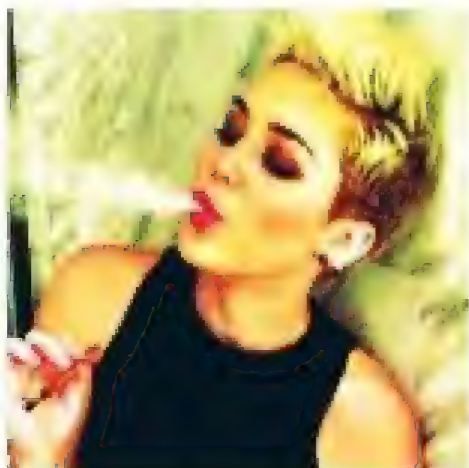
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Miley's October Surprises

"I think weed is the best drug on earth. Hollywood is a coke town, but weed is so much better."

That's what Miley Cyrus told *Rolling Stone* in October. In its cover story, the 20-year-old pop princess declared that pot and "Molly" (MDMA) are "happy drugs—social drugs. They make you want to be with friends. You're out in the open. You're not in the bathroom."

She also reiterated her distaste for cocaine: "I really don't like coke. It's so gross and so dark. It's like, what are you, from the nineties? Ew."

Also in October, Miley tweeted a picture of herself wearing a T-shirt adorned with the face of fellow pop sensation Justin Bieber. The Beebs was pictured with a drawn-in joint between his perfectly polished teeth and sported a "crown" of cannabis leaves. Instead of "Bieber Fever," the shirt read "Reefer Fever."

She also hosted *Saturday Night Live* in October. In the opening skit, she encountered the "old Miley" (portrayed by cast-member Vanessa Bayer) and joked with a knowing smile: "I think I'm hallucinating. I must've smoked too much...cigarettes."

It's *not* better in the Bahamas.



Craig's List (Of Drugs)

Actor Craig Robinson, who starred in *The Office* and *Hot Tub Time Machine*, was busted in the Bahamas for trying to board a plane with pot and Ecstasy. The quantity of weed was pitiful—half a gram—but he was carrying 18 MDMA pills.

Robinson, who was in the Bahamas performing in a comedy show at the Atlantis hotel, appeared in court the same day still in T-shirt and shorts, pleading guilty to two counts of drug possession. As reported by TMZ, Robinson informed the judge he purchased the drugs in America and claimed he didn't realize they were illegal in the Bahamas. Robinson faced up to four years in prison, but skirted incarceration by paying a \$1,000 fine. He was then ordered to leave the country—immediately.

Hand Us Some Medicine!

For the past several years, research has been released that indicates cannabis may hinder the growth of cancer cells—or even outright kill them. Mainstream medicine has remained somewhat skeptical. But that may crumble. Wai Liu, a senior research fellow at St. George's University of London, has published a paper in the October edition of *Anticancer Research*, wherein he reports that he has discovered six cannabinoids can slow or outright kill cancer cells. THC has a "really strong anti-cancer effect," Liu says, but he added, "It's not a good candidate for therapeutic use because of its psychoactive properties."

He studied other cannabinoids that might impact the growth of leukemia cells both individually and in combination. They were "good at killing cancer cells," he said. "And because they're not psychoactive, you have the benefits associated with anti-cancer technology but not the feelings of being high associated with THC."

Some cannabinoids are better at killing cancer cells and others are better at slowing their growth, Liu says.

So, is anybody listening?



Nugs of North Korea

Darmon Richter, a 29-year old freelance British writer, recently detailed his experiences getting high in North Korea. Despite the harsh totalitarian regime that rules the nation, Richter wrote on *thebohemian-blog.com* in September that not only is pot use tolerated, it's actually encouraged. With a high-ranking Ministry of Foreign Affairs official as part of his traveling entourage, Richter was granted access to a farmer's market in North Korea's major city of Rason, where virtually everything is for sale—including "a veritable mountain of marijuana," as Richter described it.

He was able to purchase a shake-laden stash from local vendors for the unbelievably cheap price of half a British pound per plastic bag. He and his companions then bought papers and were soon "rolling up and lighting comically oversized joints right there in the middle of the crowded market." Richter wrote that he and his crew—which included the Foreign Affairs official—proceeded to pass their jays openly as their tour of Rason continued.

Richter noted that cannabis is far from demonized in North Korea. It's used by the working class and service industry employees for relaxation and is praised and recognized for its medicinal qualities. Richter reports that pot grows widely throughout North Korea, though most of the marijuana sold in markets is professionally produced in large land plots.



Colorado activists celebrate a victory in the field.

Historic Hemp Harvest

Hemp was one of America's earliest crops, intertwined with our history. Now it's a criminal offense to grow it. The DEA is in charge of granting licenses to grow hemp. But the agency has only ever sanctioned one, for an experimental crop in Hawaii in 1999. Otherwise, a hemp crop hasn't been harvested in the US since 1957. But in October, Ryan Loflin and 45 Colorado activists did just that.

In 2012, Loflin harvested a small number of hemp plants at his home in Crested Butte. This year he seeded 60 acres of hemp on his father's Springfield farm. Surprisingly, the DEA took no interest in the crop, despite a history of military-style raids to stop attempts to grow hemp on the Pine Ridge Indian reservation in 2000, 2001 and 2002.

Loflin obtained the seeds via mail-order from Europe. He plans on tripling his hemp acreage in 2014 as well as planting a month earlier. But this time he'll have a state license—Colorado laws have cleared the way.

MJ vs. MS

Medical marijuana's value in treating multiple sclerosis (MS) is being increasingly recognized. New research out of Tel Aviv University in Israel reports that both of the cannabis compounds THC and CBD (non-psychoactive cannabidiol) appear to ease symptoms. When injected in mice, they inhibited their immune cells from producing inflammation harmful to the brain and spinal cord. Among those molecules restrained by cannabinoids is interleukin 17, a particularly nasty, pro-inflammatory signaling cytokine. Lead researcher Dr. Ewa Kozela explained to the *Journal of Neuroimmune Pharmacology*: "Inflammation is part of the body's natural immune response, but [with] MS it gets out of hand. Our study looks at how compounds isolated from marijuana can be used to regulate inflammation to protect the nervous system and its functions. When used wisely, cannabis has huge potential. We're just beginning to understand how it works."

The Futile Drug War

The global Drug War has been a colossal failure. A new study reveals how disastrous it's been.

The International Centre for Science in Drug Policy in Canada reports that despite a global increase in illegal drug seizures, both the potency and purity of drugs have risen at a reduced cost to the consumer.

Published in the *British Medical Journal Open*, the study analyzed data generated by seven government drug surveillance systems, including the DEA's

System to Retrieve Information from Drug Evidence (STRIDE). In the US, between 1990 and 2007—the most recent year widespread data is available—the average purity for cocaine increased 11 percent while heroin's was a whopping 60 percent.

Simultaneously, inflation- and purity-adjusted prices for heroin dropped 81 percent, with coke prices decreasing 80 percent. Yet the United Nations Office of Drug Control reports that there was also a rise in drug seizures between 1995 to 2006, indicating

increased supply and demand.

But the study's pot stats must be disputed. We doubt the study's claim that the average potency- and inflation-adjusted prices of pot went down 86 percent during that same time span. Medical marijuana has cheapened the cost of cannabis in states like California, but not that significantly.

Communications Coordinator Kevin Hollett said that particular figure was obtained from the aforementioned DEA system, so forgive us if we don't take it in "STRIDE."

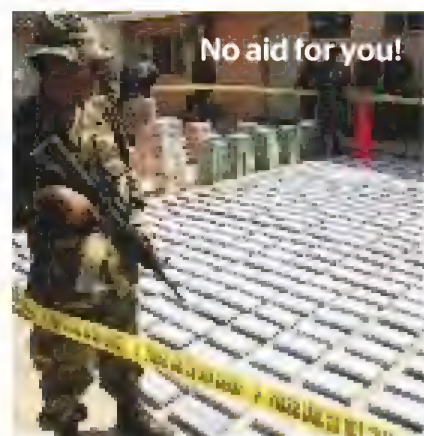
Please Mess With Texas!

Presently, Texas has some of the harshest pot laws in the US. Getting busted with any amount of weed is a criminal offense that can earn you up to a year behind bars and a fine of up to \$2,000. But Texans are coming around to the reality of legal pot. In a September poll released by the Marijuana Policy Project, 58 percent of Texas voters either "strongly" (41 percent) or at least "somewhat" (17 percent) support legalizing recreational weed for adults and regulating it like alcohol. Only 38 percent either "strongly" (24 percent) or "somewhat" (14 percent) oppose passing pot laws like Washington and Colorado.

Of the 860 Texas voters surveyed, 58 percent also favor legalizing medicinal cannabis; only 31 percent object.

The Texas Dept. of Public Safety reports that more than half of all drug arrests statewide are for pot. FBI stats revealed almost 80,000 Texans were arrested for weed in 2012, with over 97 percent for mere possession.

HIGHWIRE

Dispatches from the international drug war. *By Bill Weinberg***Venezuela, Bolivia, Burma “Blacklisted” by US—Again**

On September 13, the White House released its annual report on global compliance with US-mandated drug-enforcement efforts, with countries either “certified” for aid or “blacklisted.” The report identified 22 “major drug transit and/or major illicit drug producing countries,” but listed only three—Venezuela, Bolivia and Burma—as having “failed demonstrably” to meet US standards for Drug War zeal. These three countries were also the only ones who failed to make the cut for the fifth year running.

In the case of Burma and Venezuela, the “blacklisting” was officially waived on grounds that aid to these two nations is crucial for US “national security.” However, only Burma is actually receiving narcotics-enforcement aid at present; Venezuela kicked out the DEA in 2005, although there have been tentative moves to restore cooperation since the death of President Hugo Chávez last year.

As the Drug War Chronicle (*stopthedrugwar.org*) points out: “Among those countries that are not listed as having ‘failed demonstrably’ are the world’s largest opium producer (Afghanistan), the world’s two largest coca and cocaine

**Colombia Pays Ecuador for Fumigation Damages**

Ending a longstanding dispute between the two countries, Colombia in early September paid Ecuador \$15 million for damages to crops and communities inflicted by the anti-narcotics fumigation planes spraying herbicides along the border. After the payment was made, Ecuador announced that it would withdraw the complaint it had lodged against Colombia at the International Court of Justice. Colombia has long used fumigation planes to spray glyphosate on lands believed to be planted with coca crops—especially in the south of the country, near its border with Ecuador. However, sometimes the wind carries the herbicide across the border, damaging animals, crops and even human beings in the neighboring country.

producers (Colombia and Peru), the leading springboard for drugs coming into the US (Mexico), and the weak Central American states that serve as lesser springboards for drug loads destined for the US. They are all US allies; Bolivia and Venezuela are not.”

Ciudad Juárez: Femicide Avenger Strikes Back

A vigilante calling herself Diana la Cazadora (Diana the Hunter) claimed credit in a series of communiqués for the slaying of two bus drivers in northern Mexico’s Ciudad Juárez, saying the killings were revenge for the sexual abuse of women by night-shift drivers. “I and other women suffered ... but we can’t stay quiet,” one of the e-mails said. “I am the instrument of vengeance for several women.” Witnesses to the first killing on August 28 said that a black-clad woman with a blond wig or dyed hair

Diana the Hunter

approached the driver, took out a pistol, shot him in the head and left the bus. The same killer told the second victim before dispatching him, “You guys think you’re real bad, don’t you?” The targeted bus line brings many women back and forth from the *maquiladoras* (assembly plants) that ring Ciudad Juárez.

Several bus drivers have been arrested in connection with the Juárez “femicide,” in which hundreds of women have been slain and dumped on the outskirts of the city over the past 20 years. Most of the drivers were acquitted, but one died in prison while awaiting sentencing and another had his conviction overturned.

Baseball Massacre Disrupts “Peace of the Graveyard”

Like a sudden, ghastly flare from a fire thought extinguished, a new massacre has been reported from the border city of Juárez, once the epicenter of Mexico’s bloody narco trade. Ten people were killed as two gunmen attacked a home in the suburb of Loma Blanca on Sept. 22, where young people had gathered to celebrate a baseball victory. A 7-year-old girl, her mother, three teenage boys and five adult men are among the dead. The Chihuahua state prosecutor’s office is investigating whether the massacre might be related to the kidnapping of five men from Loma Blanca’s baseball field two months ago.

Loma Blanca is also where federal police killed a Sinaloa Cartel capo, Gabino Salas Valenciano, in August. Days later, on September 2, Mexican federal police in Nayarit state detained



the alleged Juárez Cartel leader Alberto Carrillo Fuentes, a.k.a. “Ugly Betty”—brother of the late, legendary kingpin Amado Carrillo Fuentes, a.k.a. “Lord of the Skies.”

The struggle of the Sinaloa Cartel to seize control of entry point from the hometown Juárez Cartel made the city the world’s murder capital for much of the past decade, with 3,000 people killed in 2010 alone.

The homicide rate in Juárez has dramatically fallen over the past three years, but many call this the “peace of the graveyard”—meaning that one of the combatants (in this case, the Sinaloa Cartel) had killed enough people to win the war.

The Loma Blanca massacre is especially ominous coming on the heels of the Mexican government’s recent gains against high-level Sinaloa and Juárez Cartel figures. Typically, kingpins getting captured or killed sets off a new scramble for control—including a bloody settling of accounts in which innocent family and community members pay with their lives. ✱

For updates on these and other stories, see Bill Weinberg’s websites, GlobalGanjaReport.com and WorldWar4Report.com.



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Getting Real

B.o.B opens up about 'shrooms, strains and shaking hands with the president. *By Sarah Renfro*

B.o.B: You think you know him, but you ain't seen the half of him. Born Bobby Ray Simmons Jr., the Decatur, Georgia-based rapper rose to fame in 2010 with hits such as "Nothin' on You," "Airplanes" and "Magic." His debut album, *B.o.B Presents: The Adventures of Bobby Ray*, topped the *Billboard* 200 chart and went gold within months. His follow-up full-length, 2012's *Strange Clouds*, hit number one on the *Billboard* rap and hip-hop charts, and featured collaborations with Nicki Minaj, Taylor Swift and Morgan fucking Freeman! He's been

making fans wait for his third effort, *Underground Luxury*, all year; at press time, there was no release date, but he's told MTV it will be "the best album this year."

Whether or not *Underground Luxury* is out by the time you read this, you've likely bumped "Headband." Released last summer, the track (featuring 2 Chainz) was the lead single teasing the album and also a hat tip to one of B.o.B's favorite strains. "After I put out 'Headband,' a lot of people pass me a blunt and say, 'Yo, it's that Headband,'" he says. "I'm like, 'What y'all know about

Headband? I never heard y'all say nothing about no Headband.' It's actually one of the older strains I remember from back when everybody was on Trainwreck and the Goo."

Simmons had another hit last summer: "Memories Back Then," a collaboration with T.I. and Kendrick Lamar (and featuring Kris Stephens), from the compilation *Grand Hustle Presents: Hustle Gang*. He's disarmingly modest about its success: "It's crazy—I never thought that song would've had that type of life." The second single from *Underground Luxury*, "Real," dropped in the fall. Another collaboration,

this one featured Future, a fellow denizen of the Atlanta hip-hop scene. Simmons says that he plays well with others and, in fact, prefers it that way. "When you have so many artists, songs get recorded a lot faster. When it's just me, I have to write all three verses. It's nice when we can get it all written at the same time!"

Despite his increasing popularity, the *Billboard* Hot 100 regular affirms his desire to stay true to the music he wants to create. "I think the most important thing is just doing what I want to do. That's always effortless," he explains, "and it translates."

Weed plays a part in that effortlessness, Simmons acknowledges. "It doesn't make you make music better, but it makes music sound so great while you're making it. For me, it just takes the stress out of everything. I can have a long day where I'll be like,

« “The video wasn’t right 35 seconds in! We need to get a new edit!” Then I’ll hit whatever’s available and I’m like, ‘Fuck that damn video.’”

He recalls initially encountering weed as more of a backseat smoker—literally. “I was always around my brother and cousins. They wouldn’t let me chief, but I was in the back of the car, getting contact high.” When the time was right, they decided to let him join in. “It was so crazy,” he remembers. “It was the first day of high school. We didn’t even walk onto campus—we walked straight off the bus into the woods. I didn’t get high because I didn’t know how to smoke right. God bless the weed that sacrificed itself to get me to the right place. Now when I roll, I put a cigarette filter in the tip, because I’m just professional like that.”

His first encounter with edibles was memorable as well. “We took a quarter of some really dandy ’dro and put it all in one pan,” he says. “We ate the whole thing ... we were on the ground for 12 hours! MTV had a pool party, and we slept through it. A friend came in one time and was like, ‘Are y’all all right? This can’t be real.’ Then I woke up, ordered some Papa John’s and was fine.”

More recently, B.o.B dabbled a bit when he was on tour with Wiz Khalifa and A\$AP Rocky. However, he admits he’s not totally on board with the trend. “When I dabbled, I just nodded out,” he says. “Once you hit it, your tolerance goes way up. It’s a healthy way to do it; it’s just a little too potent. If you juice cannabis, you have several health benefits. It’s not a psychoactive unless you put fire to it.”

Chemistry aside, Simmons says he plans to keep writing about his love affair with weed. “I did a song with Wiz called ‘High as Hell.’ I



“Obama, you know about Mary Jane? I’ll tell her I saw you.”

got a song called ‘Psychedelic Thoughts’—it’s very trippy. Don’t underestimate the areas of your brain you haven’t unlocked. I do natural things like San Pedro and mushrooms, but only in tea form. When you get there, it’s like, ‘There is a God!’ A lot of my progress in music is through the unlocking of the brain.”

One of B.o.B’s favorite encounters with weed was in 2011, when he performed at the *High Times* Cannabis Cup. That was his introduction to the city of Amsterdam, which offered up the finest dank at every turn. “We got off the elevator and there was weed sitting on the

table,” he recalls. “It was like dying and going to heaven. When I was at Barney’s, they had those Space Shakes. I don’t know if they put ‘shroom tea in it or what, but they don’t do it anymore. They said they got into a legal thing.” Though he had a blast at the event, he soon found out that the dangers he’d been warned about in Amsterdam were real: High or not, “you gotta watch out for the bikes! You gotta look

four ways before you walk anywhere.”

Not long before flying out to Holland for the Cannabis Cup, B.o.B attended a fundraising dinner for President Obama in Los Angeles. He recalls the event with a mixture of humor and awe: “It’s amazing you can shake hands with the president, then go say ‘what’s up?’ to Mary Jane. It was like, ‘Obama, you know about Mary? I’ll tell her I saw you.’” 🌿



Flying in a Blue Dream

Besides Headband, two of B.o.B’s all-time favorites include Blue Dream, a relaxing cross of Blueberry and Haze, and the super-hybrid Girl Scout Cookies. Those are the ones, the rapper notes, “where I can tell, ‘Whoa—this ain’t no regular strain!’”

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"Then we started getting offers and offers We couldn't stop."

Today's Death Angel features original members Cavestany and Osegueda, plus guitarist Ted Aguilar, drummer Will Carroll and bassist Damien Sisson. And with four subsequent albums under their belt, their sound has become progressively thicker and heavier, as evidenced on *TDCFB*.

"We've now been together longer in our second half as Death Angel than the original part," Cavestany says. "We're much tighter and cleaner. We used to swing around our hair a lot back then,

but now we actually go off onstage much more."

One thing that hasn't changed is Cavestany's appreciation of marijuana in regard to the songwriting process. "Everyone has their own chemistry, but goddamn it, this works for me!" he laughs. "It opens up my mind to just hear the *colors* of the music; it shuts off other things."

The same holds true when they're on the road. "We're post-show partiers," Cavestany says. "All day long, we're taking good care—drinking our green tea, working out, playing the show. *Then* we go play and have fun."

And the pot certainly hasn't diminished Cavestany's zeal for the music or the band. "We are on fire right now," he says. "We feel very lucky to have this kind of life, so we're going to make the most of it." ✨

The Dream Calls for Bud

San Francisco thrash vets Death Angel continue their second act with a devastating new album. *By Zena Tsarfin*

The exuberance in Rob Cavestany's voice is downright infectious. You'd think the Death Angel guitarist was promoting the band's debut, but the thrash metal icons have just released their seventh LP, *The Dream Calls for Blood*.

"It's so cliché, because everybody says it, but there's something different about this album—something heavier and deeper-rooted," he says. "So we're quite proud of it." Indeed, *TDCFB* burners such as "Left for Dead" and the superb title track continue Death Angel's tradition of combining sheer brutal force with melodic sensibilities.

Formed in 1982 by five Filipino cousins during the rise of the San Francisco Bay Area metal scene, Death Angel found their place as the bratish darlings of the thrasher set. Adding punk rock

elements and punchy riffs to Mark Osegueda's screeching vocals, the band channeled palpable youthful angst on their 1987 debut, *The Ultra-Violence*. Their rebellious sound was understandably

"Weed opens up my mind to just hear the colors of the music."

raw, as drummer Andy Galeon was only 14, while everyone else in the band was under 20.

With their next two albums, 1988's *Frolic Through the Park* and 1990's *Act III*, as the members of the band matured, so did their musical proficiency and songwriting skills. Death Angel eventually signed with Geffen, which released their third

album. However, the group disbanded the following year after a tour-bus crash that seriously injured Galeon—and though its members formed various new acts, nothing caught on in the same way.

It wasn't until 2001 that they were goaded into a comeback to play a benefit show for Testament vocalist Chuck Billy, who'd been stricken with a rare form of cancer. "We said no, but they just kept on us, and eventually Chuck called me himself," Cavestany recounts. "We decided that if there was ever going to be a reason, this should be it." From that point on, Death Angel was on a roll:



All in the Name

According to guitarist Rob Cavestany, *The Dream Calls for Blood* serves as Death Angel's mantra. "The 'dream' is keeping our band alive, and the 'blood' that it calls for is sacrifice—the blood, sweat and tears. Anybody can apply their story to that."

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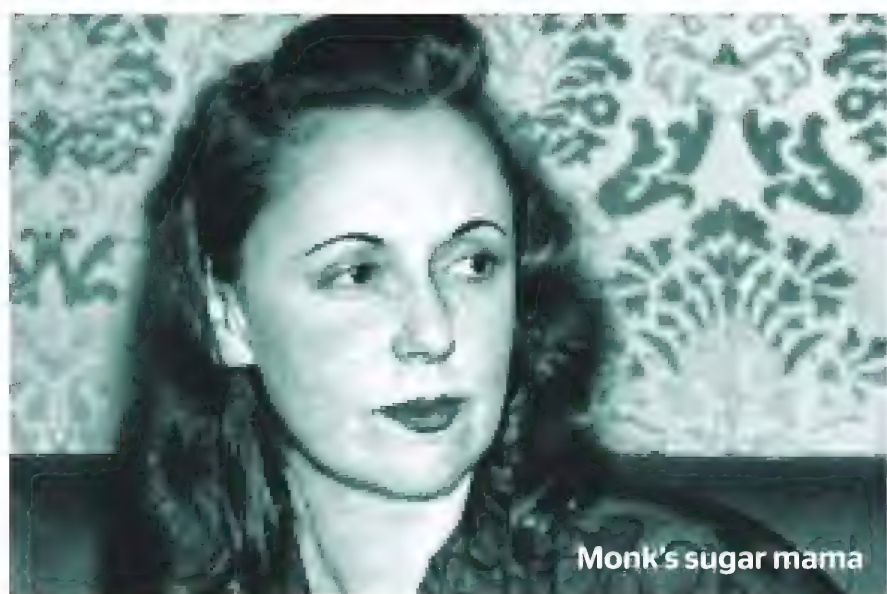
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A Crazy Friend Like You

The beautiful baroness of bebop falls in love with a giant of jazz.

When the Baroness Pannonica “Nica” de Koenigswarter asked Thelonious Monk for three wishes, his third was “to have a crazy friend like you!” The pianist and composer was ribbing her—they were already more than friends. The mid-20th-century relationship between the American musical genius and the British aristocrat from the gazillionaire Rothschild family was in truth a love story, though probably platonic. Each gave the other what they needed: Monk got financial and emotional support, and Nica a lifetime backstage pass to the jazz life—a joyous escape from the “gilded cage” of her upbringing.

In addition to her roles as artist, photographer, cat lover, mother of five, and Jewish veteran of the Free French Army who risked her life fighting the Nazis, Nica was crazy for jazz. After the war, she was so moved by a record called “Round Midnight” that she went on a quest to find the man who wrote and recorded it. Throughout thick (Monk’s slow but steady ascendance, eventually landing him on the cover of *Time*) and thin (his chal-

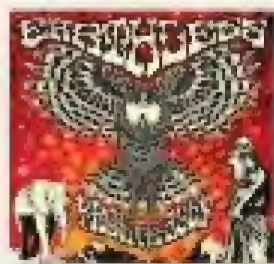
lenges as a black man and as a musician plagued with ill health), they became inseparable. That he was married with two kids and she was white provoked scandal, even though Monk’s wife Nellie was cool with the arrangement and made room for Nica to help take care of a man whose volcanic free spirit kept him in trouble in a world unkind to nonconformism. When they were busted for pot by a cracker cop, Nica took the rap and faced prison rather than allow Monk to be put through the American “justice” system. (She got off on a technicality.)

Author Hannah Rothschild is Nica’s grandniece and an accomplished documentarian. Though she’s a bit out of her milieu at times—when it comes to drugs, for instance—she’s done her homework and written a deeply affectionate tribute to her aunt and Monk. Rothschild is clear that freedom from the constraints of gender, class and race enables the freedom to make art as well as love. *Michael Simmons*



Hannah Rothschild
The Baroness
(Knopf)

MUSIC RECOMMENDATIONS



Earthless
From the Ages
(Tee Pee Records)

➤ You don’t *listen* to an Earthless album so much as you occupy space within its cacophonous crevices, and this is true for *From the Ages*. Guitarist Isaiah Mitchell’s leads drive “Violence of the Red Sea,” while a spiritual progression opens “Uluru Rock” before drummer Mario Rubalcaba

ignites pure psych propulsion. A bong-smoke-filled basement is the perfect setting to become one with “Equus October,” as bassist Mike Eginton summons an *Ummagumma*-like excursion. And the entire band coalesces on the epochal 30-minute title track.

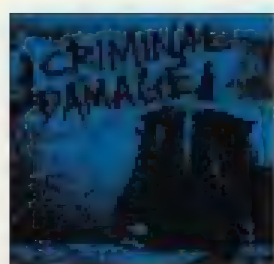
Mark Miller



Delphic Oracle
Watching the Fern
(Self-released)

➤ On her debut EP, violinist Christiana Key steps in front of the microphone as Delphic Oracle. Opening cut “Obsession” layers violins and synths, setting a seductive tone of dark magic. That tone falters during the title track, with an Bollywood-remixed-by-faeries vibe that doesn’t quite land. All

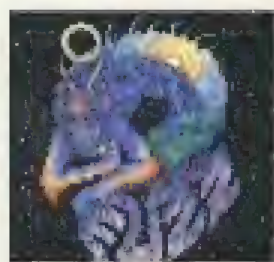
is restored by the graceful chamber pop of “Poseidon.” The EP closes with the trance-inducing medieval polyphony of “Death Dreams,” where violin loops are replaced by vocal ones, filled with creeping emotion teetering between meditative calm and menacing unease. *Beverly Hames*



Criminal Damage
Call of Death
(Feral Ward)

➤ Raging, anthemic street punk from the Pacific Northwest, following in the bootprints of early-’80s UK stalwarts Blitz and Cock Sparrer. The title track is like a thousand needles of lightning to the heart, but the whole album is a seething testament to the disenfranchisement bred

by everyday life. Powerful, crunchy guitars and a melodic bass nearly end up burying the thick, angry vocals, with the fantastic result being that the singer (Tragedy’s Paul Burdette) sounds like he’s fighting not only the world but his whole band. All bullets and no blanks here. *Polly Watson*



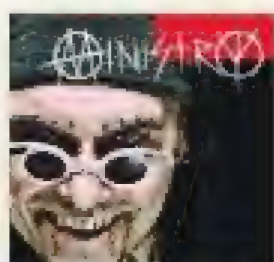
Fuzz
Fuzz
(In the Red)

➤ Psych “supergroup” Fuzz delivers one of the year’s more vibrant releases. Slow-building opener “Earthen Gate” showcases Charles Moothart’s tasteful guitar, while the accessible “What’s In My Head?” is lifted to emotional heights by the soaring vocals of Ty Segall, who doubles on drums.

Don’t eat the brown acid during “Hazemaze,” though “Preacher” will surely motivate you to party in the pews. Album closer “One” alternates between hurling hardcore and Roland Cosio’s bubbly bass breaks, leaving you drooling for more from this accomplished Cali trio.

Mark Miller

BOOK RECOMMENDATIONS



Ministry: The Lost Gospels According to Al Jourgensen
Al Jourgensen with Jon Wiederhorn
(Da Capo Press)

➤ Ministry’s bedeviled mastermind revisits all the gory details of his life, from a bucolic beginning in Cuba to his gobsmacking, decades-long use of smack, crack, speed and booze. The industrial-metal madman chronicles tripping with Tim Leary, run-ins with Metallica (“Scramtallica”) and

Madonna (“She smelled like dog shit”), visits from extraterrestrials, and losing his big toe after a broken-needle incident. While his fury at the world is on full display, Jourgensen’s black heart beats true throughout *Gospels*. Ministry fans will want his miserable company.

Mary Jane Gibson

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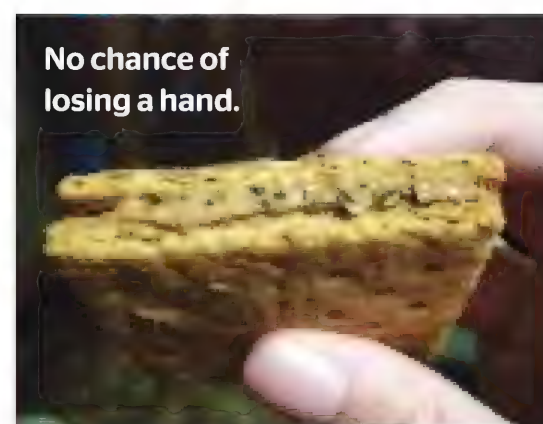
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MUNCHIES

Weed gets snappy!

Trying out this classic firecracker recipe is a blast.

Simplicity is a beautiful thing, but these old-school stoner snacks aren't just simple—they're the perfect quick fix when you're short on time and/or weed. There's no canna-butter to make, no straining to perform.

Also, even if you aren't exactly the kitchen type, you'll be able to pull these off without a hitch. In this, I have the utmost faith—just as I have the utmost love for the simultaneous simplicity and complexity of cannabis that make up its perfect yin and yang.

Simplicity: This is a plant that loves to grow. Its medicinal properties are inarguable—despite what prohibitionists say—and for most users, it enhances our experience of

the best stuff that life has to offer: music, sex, food, comedy, the great outdoors—whatever your fancy. Its applications are nearly endless, and the plant itself is just plain awesome.

Complexity: Cannabinoids, chemical compounds that are produced *only* by the pot plant, are numerous and vary in effect. This mix of subtleties makes each plant unique, and yet each blend fits perfectly with our brain's cannabinoid receptors.

Humans and cannabis have always been a match made in Nature. And though pot is easy to grow, breeders have also worked their magic, employing plant science, a variety of setups and grow mediums, organic fertilizers, different kinds of light, and all sorts of tricks and gadgets to present us with cannabis that rivals the finest of wines in terms of taste and end result.

Back to the topic at hand: The following is an easy-peasy recipe for making the classic firecracker. My favorite variation is also a cinch: Use Nutella on one cracker and peanut butter on the other; after sprinkling on the weed, drip a few drops of coconut oil on top, squish 'em together and *voilà!* *Mary Ought Six*

CLASSIC FIRECRACKER

2 whole graham crackers
Organic peanut butter
(the oilier the better)
0.7 to 1 gram ground cannabis

Preheat the oven to 320°F. Break the graham crackers into halves so that you have four squares with which to make two sandwiches. Spread each square with as much peanut butter as you like, but don't get too crazy or too close to the edges; you don't want activated oils on the run!

Next, sprinkle the ground-up weed evenly atop the newly spread peanut butter. (You can use the tip of the knife to gently massage the shake into

the butter to assure complete coverage if you're feeling fancy.) Lightly smush the spread sides together and then wrap each sandwich in tinfoil. It doesn't need to be tight or pretty; the wrap is meant to keep the active properties baking on the inside, while also keeping most of the familiar heady pot aroma at bay. Bake 20 minutes, let them cool off a bit and chow down!

Though the smell may dissipate quickly, these treats produce a high that lasts. Also, keep in mind that "simple" doesn't mean "weak," and these oldies-but-goodies pack a mighty punch! *Stones 2.*



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A photograph of the Magical Butter MB2 machine, a stainless steel thermal carafe with a black lid and handle. To its left is a tall glass filled with a golden-brown oil. In the foreground, there are fresh green herbs and a small white bowl containing yellow butter. The background is a blurred kitchen setting. A green diagonal banner in the top right corner contains the 'Magical Butter.com' logo.

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As a guideline these are the measurements that we recommend. But feel free to make it as potent as you like.

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2 cups oil of your choice (vegetable oil is not recommended)

2 tablespoons soy lecithin

DO NOT ADD WATER!!!

HOW TO

- Step ①** Place your ingredients into the MB2 machine.
- Step ②** Press the "Temperature" button and set at 160°F (This is the temperature that you want to use for all of your extractions. The other temperature settings are for cooking.)
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- Step ④** Strain to remove botanicals and your oil is ready to use.



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The Dogg Ate My Pot!

For HT's art director, shooting Snoop was a "losing" proposition.



In the publishing industry, any art director's foremost concern is what's going on the cover. And as we all know, celebrities are the most common images used to sell issues on the newsstands. In the case of *High Times*, Snoop Dogg has been a popular icon, appearing on our cover three times.

Needless to say, cover shoots often require props. In our case, it's pot—and lots of it. So when we decided to shoot Snoop the first time for our January 2000 cover, it was imperative not to skimp on the weed allotment. Luckily, a local New York City grower among our network of sources was able to provide a pound for the shoot—as long as we promised to give it back.

At the photographer's studio, I immediately grabbed the buds—which had been delivered in a Hefty lawn bag!—and separated the most picturesque specimens from the rest, putting them aside for the shoot. Snoop soon showed up with an entourage of huge dudes, as big as professional wrestlers, with biceps the size of my legs. Over the next two hours, a feeding frenzy

ensued. Massive joints were rolled and, in no time, the studio was billowing with smoke. Finally, after a couple of hours of prep and plenty of toking up, the shoot took place and we nailed a great cover.

But in the other room,

serious damage had been done. The editor who was serving as the "meet-and-greeter," handling the hospitality for Snoop and his posse, had given away a whole bunch of weed. At the end of the session, we

weighed what was left in the bag. *Gulp!* ... four ounces light.

The next day, the editor who'd been so generous with someone else's weed tried to slide an expense request by the bookkeeper to cover his unintended largesse. She, in turn, walked into editor-in-chief Steve Hager's office to flag the request. Hager then called the editor in and basically asked him: "WTF?"

He responded testily: "This is Snoop Dogg, dammit! If I had to do it over, I'd do the same thing again."

Hager's response was an obvious one: "Guess what? You're never doing it again!"

Frank Max

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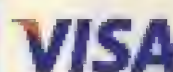
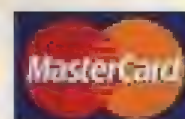
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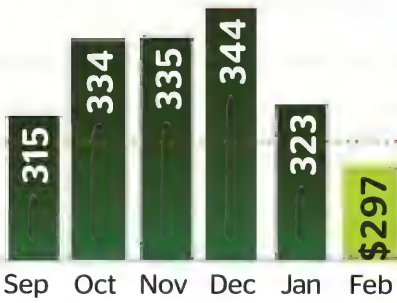
(Girl Scout Cookies)
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(Chemdog)
“There’s a huge stoner contingent in Montana. We’ve got some of the best bud in the country. I’m serious!”
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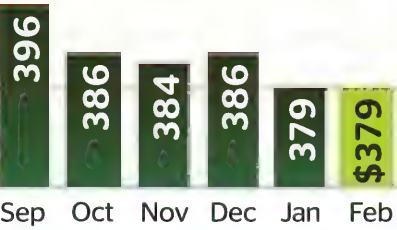
MARKET ANALYSIS Prices by the ounce

The US Price and Mids indices finished the month well below their January averages. The US Price Index dropped \$26 in February and fell below \$300 for the first time. The Mids Index dropped \$35 this month and fell to \$263 an ounce—its lowest average price since August 2012. Meanwhile, the Kind Index held steady in February, finishing at \$379 an ounce.

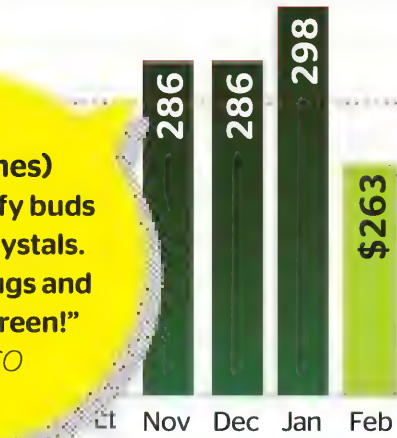
US Price Index
YTD Average: \$310



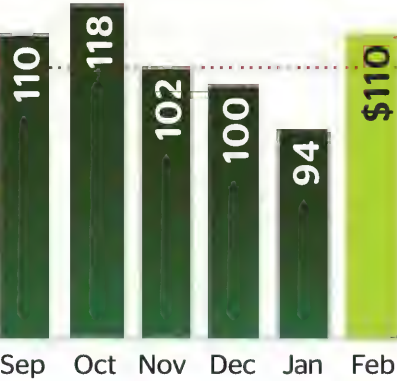
Kind Index
YTD Average: \$379



Mids Index
YTD Average: \$281



Schwag Index
YTD Average: \$102



(Casey Jones)
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TRANS HIGH MARKET QUOTATIONS

STATE	CITY	STRAIN	PRICE
Arizona	Phoenix	Purple Kush	\$425
Arkansas	El Dorado Fort Smith	Spoetnik #1 Lemon Haze Blue Cheese	400 350 330
California	Redding San Francisco San Jose	OG Kush Big Buddha Cheese Super Lemon Haze	280 200 360
Colorado	Denver Pueblo	Casey Jones Purple Flo	220 180
Delaware	Newark	Girl Scout Cookies Hazeberry	370 360
Florida	Miami Spring Hill	Alaskan Thunderfuck Skywalker OG Jedi Kush	325 325 280
Hawaii	Maui	White Widow	250
Maine	Portland	Catatonic Kush	275
Massachusetts	Boston	East Coast Sour Diesel	400
Michigan	Detroit Mount Clemens	Quasar Strawberry Cough	200 225
Minnesota	Duluth	Chocolope	250
Mississippi	Darling	Agent Orange	440
Montana	Missoula	Chemdog	225
New Hampshire	Manchester	Blue Dream	400
New Jersey	Brick Sussex County	Hindu Kush NYC Sour Diesel	360 325
New Mexico	Albuquerque	Vanilla Bean	320
New York	New York	Granddaddy Purps Strawberry Cough	300 400
Ohio	Cincinnati Columbus	Girl Scout Cookies OG Kush	350 350
Oklahoma	Norman	Lemon Haze White Widow	300 400
Oregon	Portland	Super Silver Haze	200
Pennsylvania	Philadelphia Pittsburgh	Sour Diesel White Rhino	360 300
Texas	Dallas	Blue Dream Chernobyl	300 280
Virginia	Richmond	Girl Scout Cookies Diesel	400 300
Washington	Sunnyside	Blue Cheese Mango	200 200

INTERNATIONAL

Australia	Sydney	Lemon Diesel	AU\$300
Canada	Calgary	Cheese	C\$200
Costa Rica	San José	White Russian	320
Germany	Bremen	Critical Plus	

High Times wants to know what you’re smoking. Submit your strain information including location and price by the ounce to thmq@hightimes.com - or tweet us (#THMQ).

(Super Lemon Haze)
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Hot Products

What's new for cannabis cultivators and connoisseurs.

1 Ideal Soil

\$25, 0.5 cu. ft. bag; \$69.99, 1.5 cu. ft. bag
ideal420soil.com

Finding a decent soil mix that's also consistent can be tough. We love the new **Ideal 420 Soil** for its balanced nutrient formula and watering simplicity. Designed specifically with the marijuana plant's unique nutritional needs in mind, this mix allows you to "just add water" and still boost the production of essential oils, which increase potency as well as flavor and aroma.

2 Waxed Board

\$559
smokinsnowboards.com or grassrootscalifornia.com

There's nothing like a product collaboration between two great companies, so when we found out that our friends at Grass Roots were working on a deck with Smokin Snowboards, we couldn't wait to see the results. These limited-edition "Waxin" Boards feature a full-length cannabis-concentrate design for riders who want to bring some dabs down the mountain with them.

3 Dry Trim

\$7,311, base model (MG200GT); \$10,959, reversible model
meangreentrimmingmachine.com

Harvesting and trimming a large crop can be time-consuming and expensive, particularly if you have to hire helpers to get the job done. The new **Mean Green Dry Trimming Machine** takes much of the labor out of the equation, even as it closely and gently trims many pounds of material. Easy to load and unload, these units also roll around on casters for quick relocation.

4 Lighting Kind

\$595, L300; \$745, L450; \$895, L600
kindledgrowlights.com

LED lighting has made a huge leap forward, and Kind K3 Series LED Lights are at the forefront of the indoor-growing revolution. These efficient units consume less than half the electricity while generating very little heat compared to their HID counterparts. Plus, the proprietary 12-band "perfect spectrum" penetrates the entire canopy ensuring tighter intermodal spacing and bud production.

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RADICAL RIGS

As concentrates blaze a trail of bliss through the cannabis community, glass smokeware has undergone an amazing evolution. All hail the rise of the rig!

*Photos by
Dan Skye &
Kent Sea*

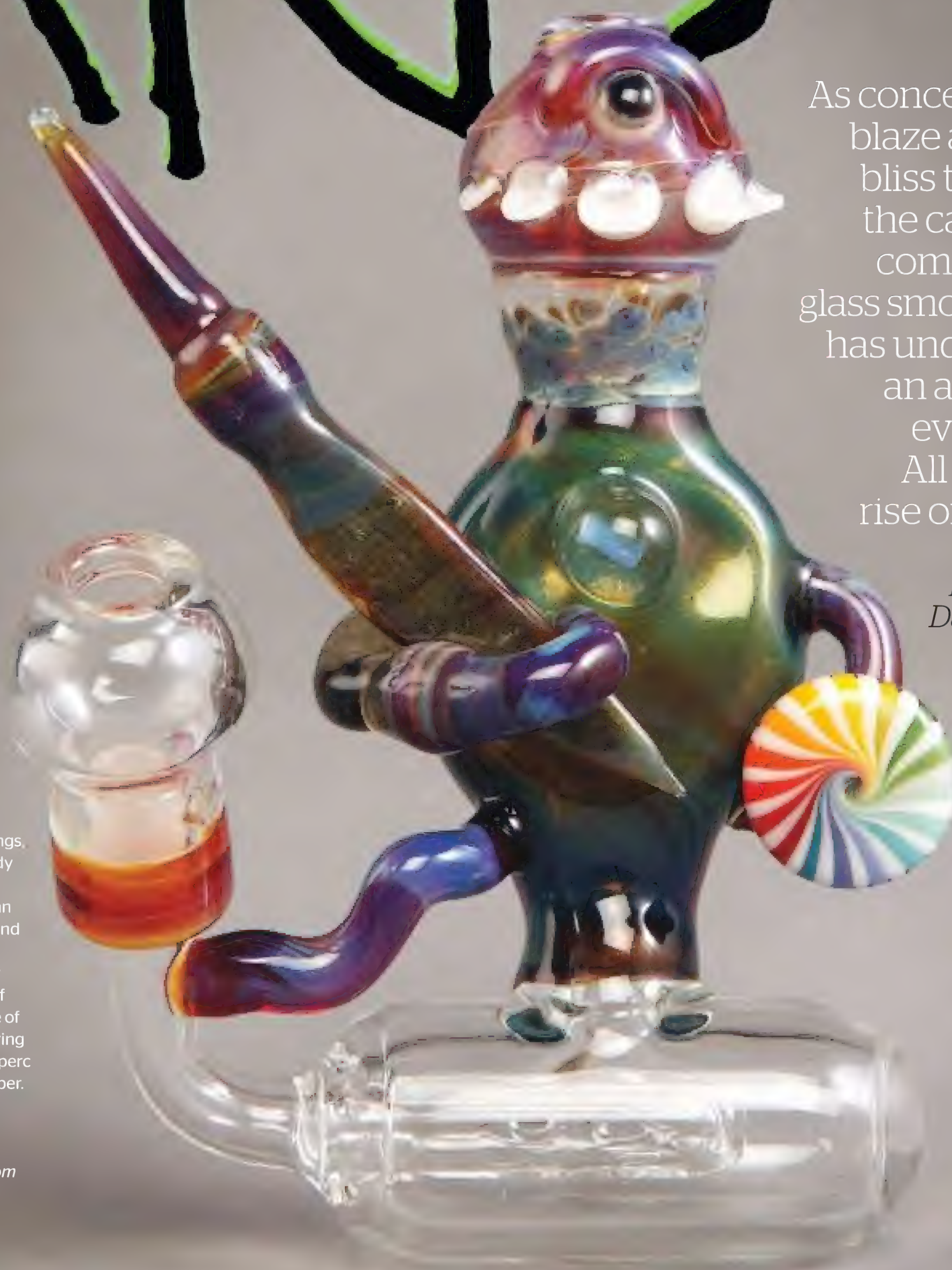
If you tend to form an attachment to your pipes and bongs, check out the Pandy Rig by Oil Glass Contraptions—it can even be hung around your neck, which means you'll never be alone! It's part of the Alien Army line of heady glass, featuring a three-hole inline perc and matching dabber.

Price: \$420, rig;

\$55, dabber

Nail: 10 mm, male

Visit: afrosmoke.com



The 10-inch inline Scientific Glass Bubbler by Headdies features 22K gold labeling and comes with an 18/19mm slide and a medical-grade titanium ladle. The sidecar micro-rig comes with an adjustable titanium nail and sidearm mouthpiece. Plus each micro-rig is shipped in a Headdies collector's box with Headdies rolling papers, tin and plastic grinder.

Price: \$310, 10-inch bubbler; \$209, sidecar micro-rig

Nails: 14 mm male slide for both
Visit: headdies.com

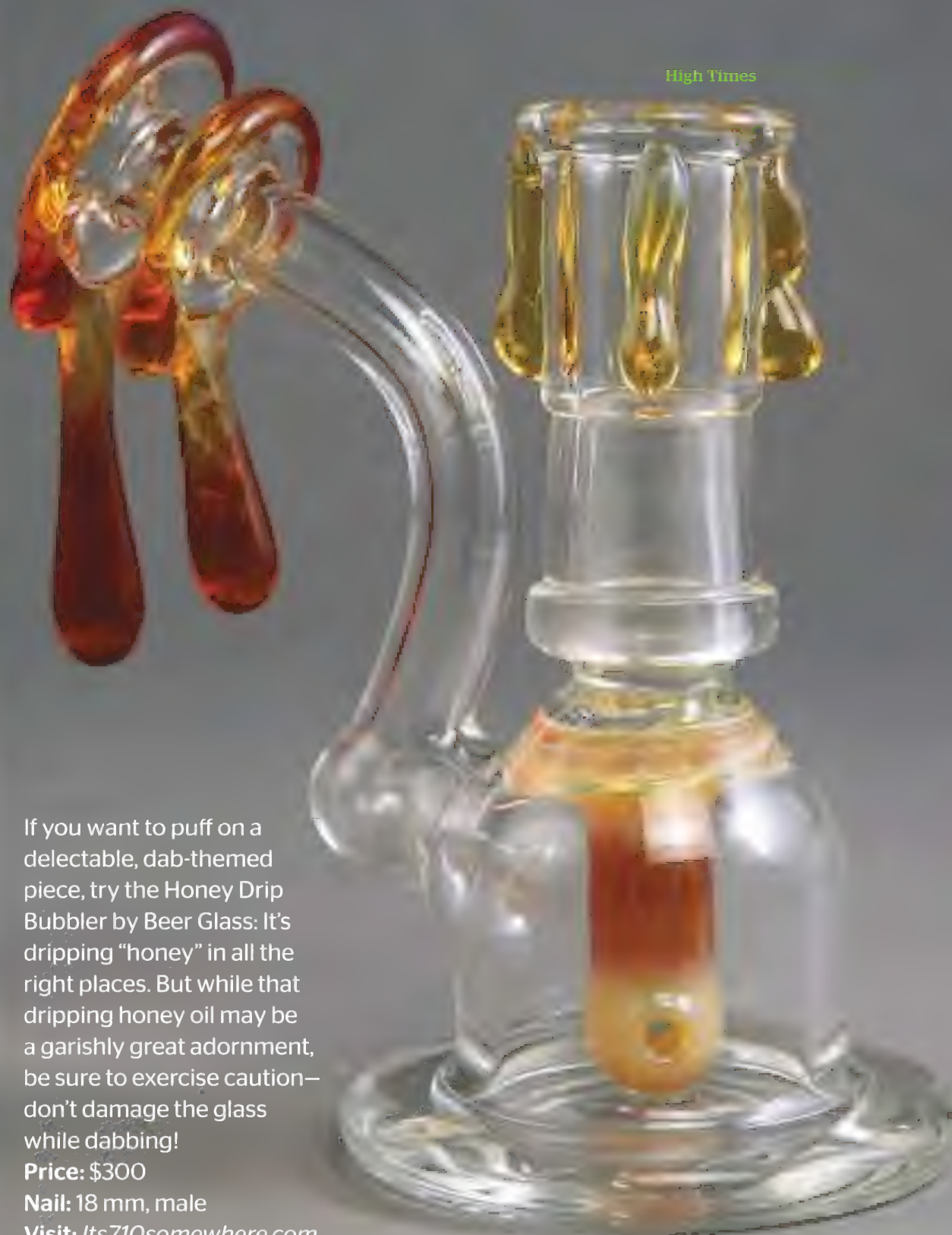


If you want to puff on a delectable, dab-themed piece, try the Honey Drip Bubbler by Beer Glass: It's dripping "honey" in all the right places. But while that dripping honey oil may be a garishly great adornment, be sure to exercise caution—don't damage the glass while dabbing!

Price: \$300

Nail: 18 mm, male

Visit: Its710somewhere.com



Check out Brutal Bee's multi-section, direct-inject incalmo mini-tube. It's functional, easy to clean and features a Brutal Bee Blasted Pi-RATT Glass/ Brutal Bee collaboration. **Price:** \$250 wholesale; manufacturer's suggested retail price (MSRP), \$500 **Nail:** 14 mm, male **Visit:** Glassex on Facebook; ws.unklenono.com for wholesale only



Seeking simple elegance? Then check out iDab rigs: They're portable and sturdy, made by California craftspeople using blown borosilicate, and designed to be a lifelong companion. **Price:** \$350 retail **Nail:** 19mm, male **Visit:** idabglass.com



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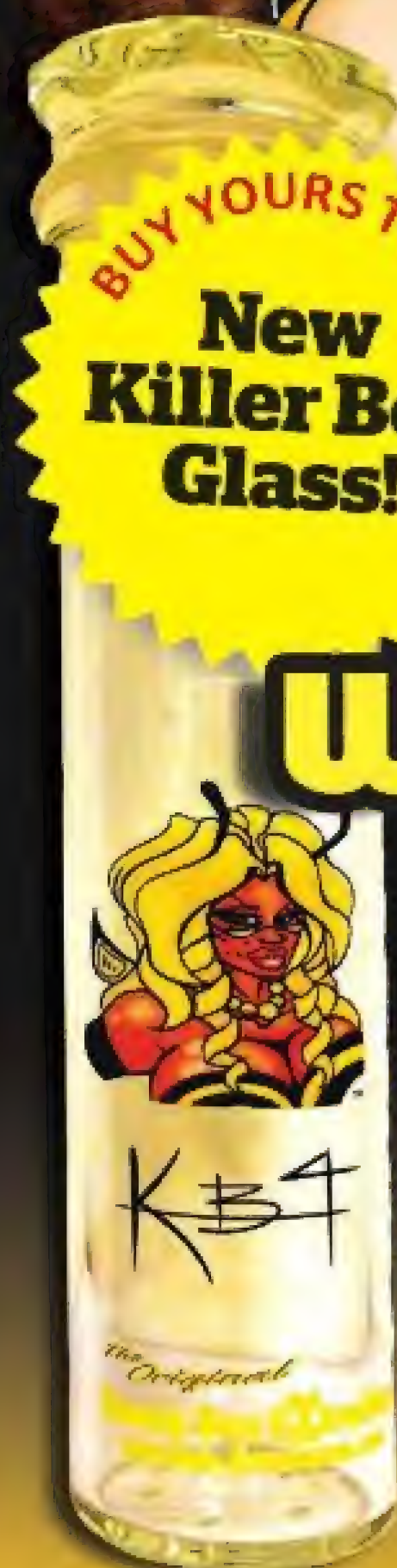
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From Wasatch Glassworks comes the world's first water-cooled, essential oil vaporizer straw (left). Just heat the tip, dip and sip! Fittingly, it's called the "Nectar Collector." Contrabasso Glass (above) has designed a superior rig to make your dabbing experience ultra-special with a clever, recycling mechanism that continually cools your hit.
Price: \$280, Nectar Collector (includes titanium tip); \$710, Contrabasso rig.
Nail: 14mm female tip
Visit: silicagallery.com



If you're seeking variety in your smoking arsenal, check out American Glass Company. Richie Rich is the artist-in-residence and he's responsible for the Triple Turtle Troubler Bubbler. His creations include an array of domes (below) and the Richie Rich Magic Vape (right) for handy-dandy dabbing.
Price: \$1250, Turtle; \$100, small fumed Magic Vape; \$150, large colored Magic Vape; Variable pricing for domes.
Nail: 14 mm
Retail only



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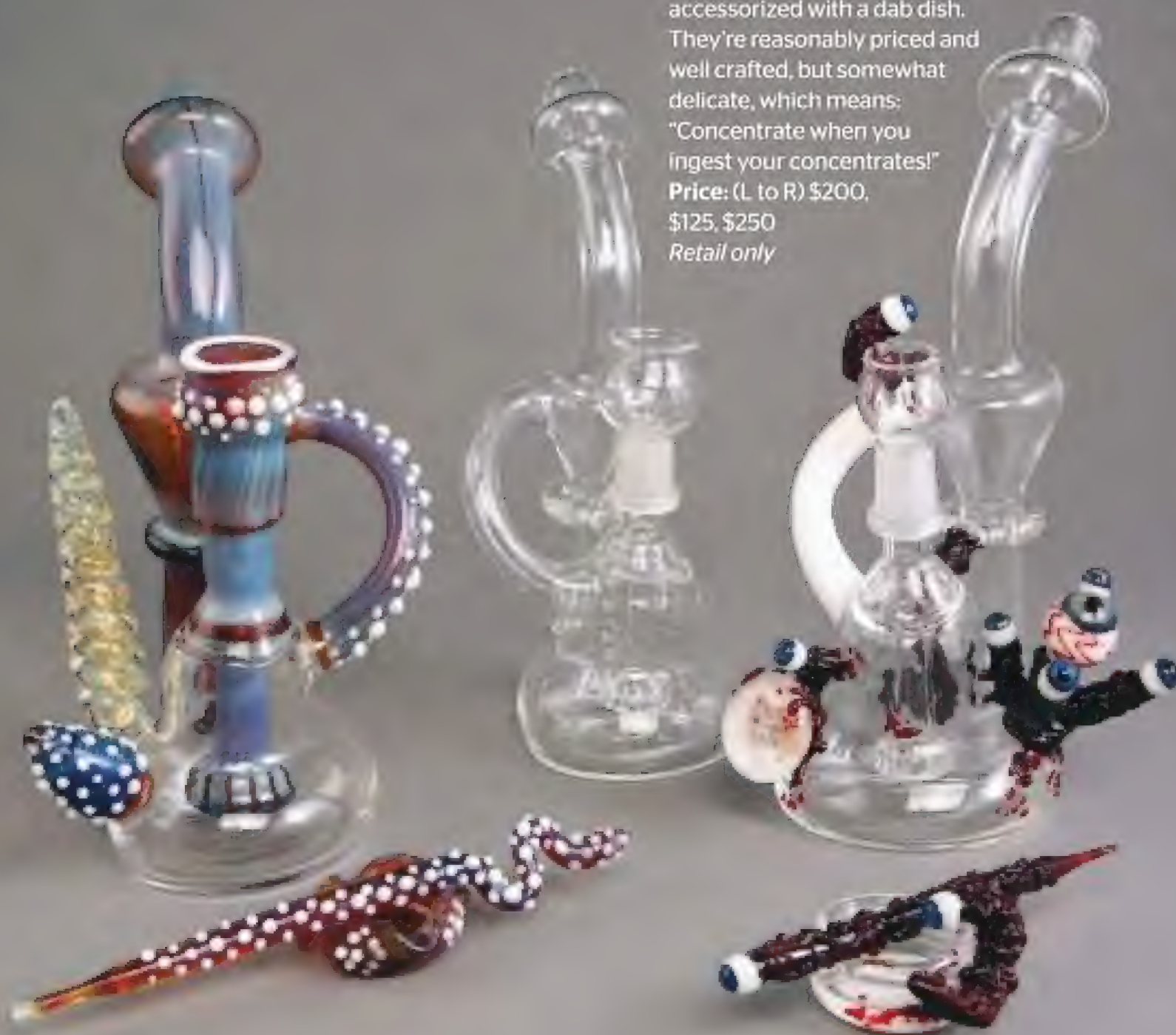
Feast your eyes on this "Compact Venturi Tripod" by Stillwater Glass, which features a venturi percolator. Gorgeous but delicate—no clumsy dabbers allowed! In truth, it's not a bubbler at all; it's a venturi "scrubber" in which the water percolates up and cascades down. **Price:** MSRP, \$295
Nail: 14 mm, male



This classic recycler, created by Tito Bern & Takoda Madrona of Bern Glass, is a sturdy piece with lovely colors and curves. Designed especially for the dab aesthete who seeks a touch of grace with their concentrates. **Price:** \$350
Nail: 18 mm
Visit: bernglass.com



Blue Dot Zong rigs can be accessorized with a dab dish. They're reasonably priced and well crafted, but somewhat delicate, which means: "Concentrate when you ingest your concentrates!" **Price:** (L to R) \$200, \$125, \$250
Retail only



Graffix, one of the oldest pipe companies in America, has just released their premier Acrylic Oil Rig with glass-on-glass connections. It's the ideal vacation bong—and virtually unbreakable. A terrific buy! **Price:** \$15-\$16, wholesale: \$30-\$35, retail
Nail: 14 mm, male
Visit: graffix.com



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The Upline, designed by M.E. of Grav Labs, features a unique, powerful design. Each vertebrae filters the smoke as the water travels upward into the top chamber. Also, the Grav Reclaimer Kits prevent oil drippage and are sold with an angle-cut, 14/20 female dome and a 14 mm titanium nail.

Price: \$200, Upline; \$60, Reclaimer Kit
Nail: Sold with a 14/20 male Octobowl
Visit: airgravitron.com



The absolutely breathtaking rigs by Sour Glass Designs will leave a sweet taste in your mouth! The Mini Sniper lies down when not being fired and has a 19/22 female dome. The Stemline Twist is an eye-catcher with a sleek look; it has a 19/22 male joint with a 19/22 female dome.

Price: Approx. \$250, Mini Sniper; approx. \$420, Stemline Twist

Nail: 19 mm for both

Visit: smokesour.com



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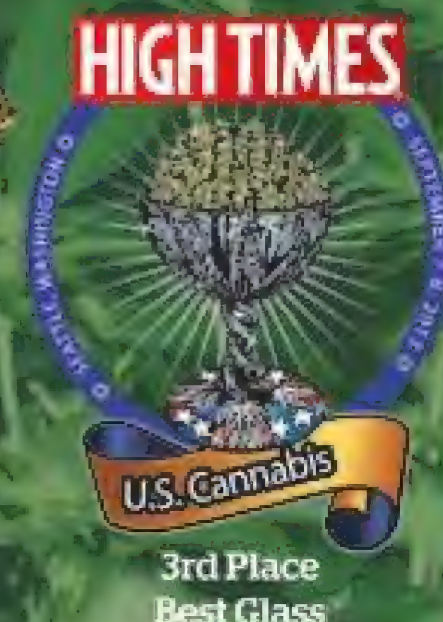
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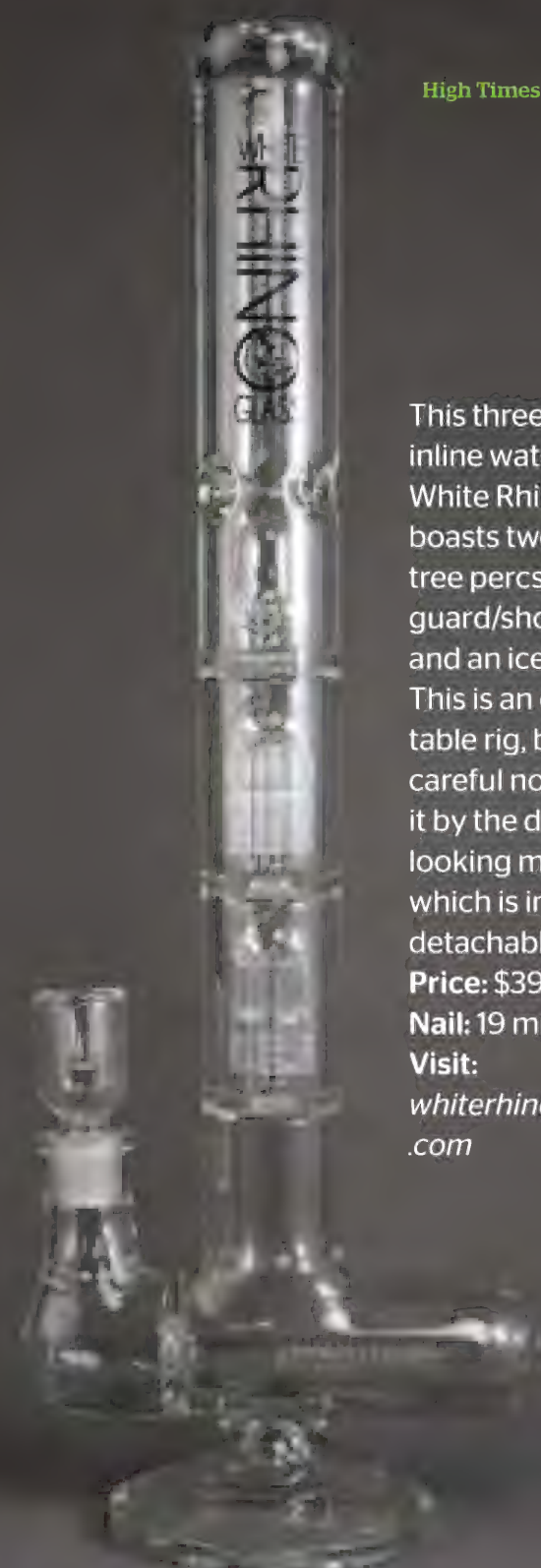


ROOR is world famous for classic design and ultimate functionality, merged with the finest filtration technologies. At left is the ROOR-Tech Double Pistol with a double meniscus perc. At center is the ROOR-Tech Slim. At center is the ROOR-Tech Chubster.

Price: \$200, Double Pisto; \$119, Slim; \$129, Chubster.

Nail: Each piece comes with a 14.5 mm nail and dome or a female bowl (customer's preference).

Visit: roor.de



This three-stage, inline waterpipe by White Rhino Glass boasts two six-arm tree percs, a splash guard/shower cap and an ice catcher. This is an exquisite table rig, but be careful not to grab it by the deceptive-looking mouthpiece, which is in fact detachable.

Price: \$399

Nail: 19 mm, female

Visit: whiterhinoproducts.com

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Dynamic Form rigs are great companions. Tastefully ornate, but highly functional. We love the rigs' grips—they're positively ergonomic! Stoners who lack good hand-to-eye coordination are advised to use caution. There are fine little touches on the rigs that will be endangered by inept usage.

Price: \$250 (left), \$195 (right), plus shipping.

Nail: Available in 14 mm or 19mm

Visit: dynamicformglass.com



Aardvark NYC's 12-inch sidecar rig is constructed of heavy-duty, American-blown borosilicate glass and features a hammerhead-to-honeycomb percolator. And as an added bonus, your purchase is backed by Aardvark's glass insurance program.

Price: \$450

Nail: 18 mm, female

Visit: aardvarknyc.com



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These two beauties by Silika are mini worked oilers with matching domes. They're great everyday rigs with a decidedly feminine touch.
Price: \$550
Nail: 14 mm
Visit: silikaus.com



The Bubbler B03 from GOAT Glassware boasts a mini-tree perc downstem with a removable mouthpiece. It's designed for both function and style, and it doesn't matter what you're smoking—this one's a great choice for flowers, oils or wax. The Bubbler B04 has a fixed, diffused downstem and a removable mouthpiece, making it ideal for transporting—though this one's designed exclusively for oils and wax. Either bubbler comes with a GOAT "piece pad" that protects it from getting cracked or chipped.
Price: MSRP, \$250-\$300
Nail: 18 mm, female (B03); 18mm, female ground fitting (B04)
Visit: goatscientific.com (wholesale only)

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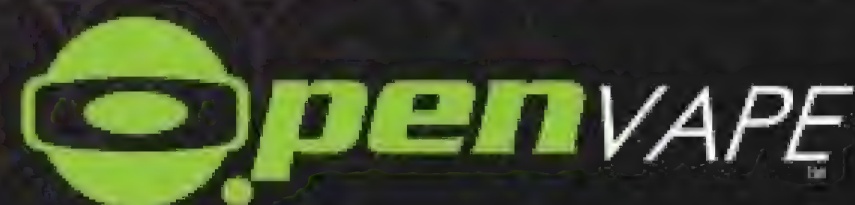
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58 Radical Rigs

High Times

These three rigs by K-Nine Tubes are portable and easy to conceal—in fact, the small one can even be worn as jewelry and is available in 15 colors. Very functional and affordable.

Price: \$120, 3-inch clear-glass rig; \$240-\$300, colored glass; \$280, 10-inch rig (with direct-inject X-Line perk); \$180, 6-inch, direct-inject mini circ
Nail: 10 mm for 3-inch and 10-inch rigs; 14 mm male joint for 6-inch mini circ
Visit: Kninetubes on Facebook



For years, Hvy Glass has manufactured some of the most decorative, sturdy and reliable waterpipes on the market. The bubbler at left is the CL Bub, a lip-wrap, direct-inject Stingray Bubbler. At right is the Vertical Zobel by Zob Glass, a true scientific innovation with a low-diffusing, direct-inject style. In the center center is the custom-worked Zobel featuring an e-cig attachment (which doesn't detach). Zob carries both clear and custom Zobellos.

Price: \$230, Stingray bubbler; \$250, Vertical Zobel; \$500, Zobel with e-cig attachment

Visit: Hvy.Glass and Zob.Glass on Facebook 🌿

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Impressive as it may be, this Amsterdam growroom is the forefather to something much more brilliant.

From the Outside In

How Amsterdam sparked the worldwide indoor grow revolution.

Story & Photos by Nico Escondido

Today, the biggest and best growrooms on Earth can be found in the United States of America. Twenty years ago, no one would have guessed that this would be the case. Of course, this is in large part due to the advent of medical marijuana in the US, specifically the passing of Proposition 215 in California in 1996. From that point on, the movement to legalize cannabis spread like wildfire, and today two US

states—Washington and Colorado—have completely legalized recreational use. (Why California isn't among them is a discussion for another time.)

Still, this story has an unsung hero of sorts that many Americans have forgotten in the excitement over these recent developments, a once-fabled place where stoner dreams came true, a land where the weed was straight out of the Garden of Eden—and where you could smoke it freely. Amsterdam is still known around

the world as a marijuana mecca, but it's a title that's increasingly honorary these days—at least for Americans who have grown accustomed to the ridiculously epic buds being produced in cities like Denver, LA and Seattle.

So here's our homage to Amsterdam, the place that started it all—to the indoor horticultural revolution that flowered there, and how it went from big to bigger, from good to great, from Holland to the US and beyond.

This Bay area growroom built by one of California's premier cultivators was spurred by Holland's horticultural revolution.



This Denver-born bud tested close to 25 percent THC—a rarity in Amsterdam.

Plant Philosophy

No matter what your opinion of Amsterdam weed might be, a salute to the growers who came before us is due—and not just to those who paved the way politically, but to those who taught us technically and practically as well. Over 30 years ago, the first seeds were sown in Amsterdam, both figuratively and literally, in terms of the indoor cultivation of marijuana. The indoor horticultural philosophy that developed there was simple and smart, and it's what drives the grow industry today: Start from the outside

and work your way in. This philosophy aims to bring Mother Nature indoors, because mimicking nature is key to unlocking the full genetic potential of the plant.

Reproducing a plant species' natural environment and climate indoors is a difficult feat. Fortunately, scientists in the Dutch horticultural industry had already set the standard for commercial greenhouse growing over decades of agricultural botany (think: tulips). With this greenhouse philosophy in mind, the same principals were applied to cannabis.

The first and perhaps biggest obstacle that indoor marijuana cultivation faced was lighting. The challenge of replicating the sun's natural spectrum and intensity indoors was something the Dutch had grappled with. Industrial-strength lamps designed for agricultural use existed as early as the 1970s. However, the early high-intensity discharge (HID) bulbs were more about quantity than quality, and operated far below today's standards of efficiency.

Though many Dutch growers have to contend with the same logistical problems that any urban grower faces in a densely populated city, growers in Amsterdam still tend to use the older HID technology, whereas newer lighting technologies are being deployed in the US. The new lamps are usually either more energy-efficient or healthier for plants in terms of spectrum, and they can include LEDs, plasma bulbs and even induction lighting. Indoor growers in the US have also converted to electronic and digital ballasts, while many indoor growers in Amsterdam still rely on the older, less efficient core-and-coil (magnetic) ballasts.

Another advance in the world of indoor cannabis horticulture that first



These clones have been transplanted into larger containers for vegging. Note the soilless, peat-based grow medium being used.

took root in Amsterdam was the advent of hydroponic gardening, or growing plants without soil using a rich nutrient solution and "soilless" grow mediums. Some of these mediums look nearly identical to earth soil, but are peat- or

a premium in Amsterdam (and in other urban areas), lugging huge bales of soil in and out of stealthy indoor grow ops is a less-than-ideal scenario. As a result, soilless mediums are still the top choice among Dutch growers.

The new lamps are usually either more energy-efficient or healthier for plants in terms of spectrum, and they can include LEDs, plasma bulbs and even induction lighting.

sphagnum-based; other soilless mediums look nothing like soil and instead are used to suspend the plants' root system in a stable yet airy medium. Other popular soilless mediums include mineral wool (commonly referred to as "rockwool"), which is made from stone fibers spun together, and HEC (hardened expanded clay) pebbles. Both of these mediums offer less buffering from harsh nutrients than actual earth soils do, but they're great for use in hydroponic systems because they retain water while letting plenty of air permeate the roots. Also, with space at



On Digital Bulbs

Consumers should be careful when shopping for digital bulbs, as labels can be misleading and many of the major bulb companies still haven't begun production of truly digital bulbs that are compatible with today's electronic and digital ballasts. (Note: The terms "electronic" and "digital" are interchangeable when referring to these ballasts.) Using non-digital bulbs in digital ballasts will result in a much shorter lifespan for your bulb as well as a possible rupturing of the end caps, which can release toxic gases from the bulb's inner arc tube into your garden and onto your buds.

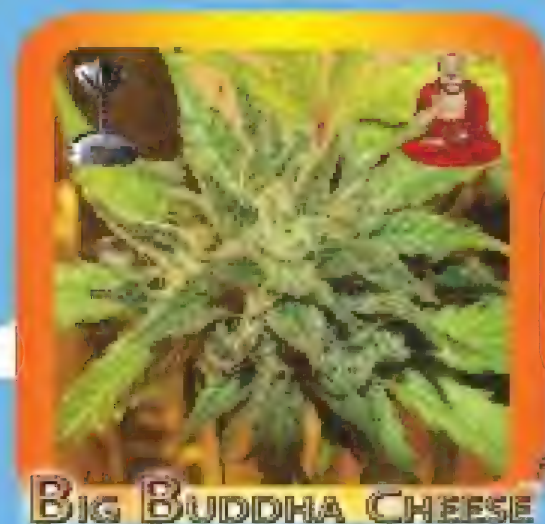
Why are digital bulbs necessary, you might ask? Because standard HID bulbs like those manufactured by Hortilux or SunMaster were designed to run on traditional core-and-coil ballasts (also known as magnetic ballasts). These ballasts run at a lower frequency (approximately 60 hertz), whereas a new digital ballast will operate at a much, much higher frequency of about 200 hertz. This causes an incompatibility between bulb and ballast, and while the bulb will still fire up and emit light, an effect known as "acoustic resonance" is created. Acoustic resonance will eventually (or, in some cases, immediately) cause an unsafe rupture within the bulb, shortening its life significantly.

To the human eye, the decrease in light intensity and quality will not be apparent. However, put a light meter under an HID bulb at the onset of use and then again after just one grow cycle and the decrease will be noticeable. The choices here are either to switch back to using a magnetic ballast or to purchase the correct digital bulbs. But whatever you do, don't waste your money on electricity and bulbs (and risk unhealthy harvests to boot) by using incompatible HID bulbs with a digital ballast.

Digital ballasts are more efficient and emanate less heat, but require specialized digital bulbs.



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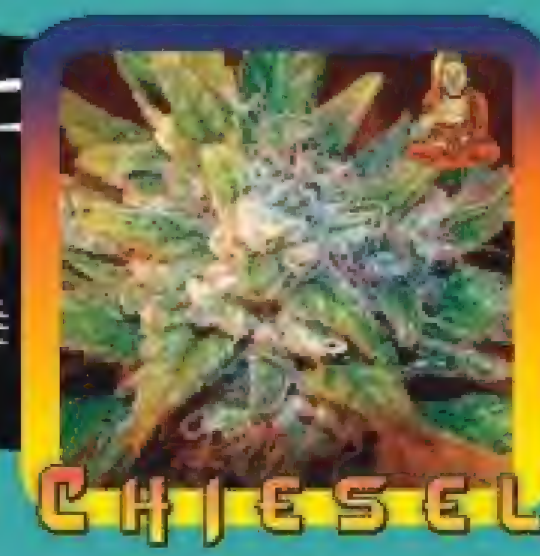
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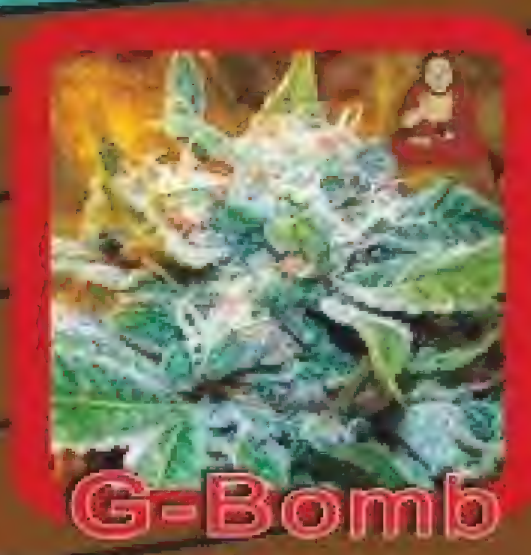
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A Los Angeles garden simultaneously uses HID and LED lamps.

Plant Biology

Grow systems like hydroponics came about because of research into how a plant's biological processes work. For example, mediums like rockwool or HEC are extremely important in a hydroponic system because plant roots use oxygen as an integral part of the nutrient-uptake process. (Remember, while the leaves breathe in carbon dioxide, the roots breathe in oxygen.) Soil tends to become compacted over time, especially indoors where frequent watering cycles can push it down, making the soil less permeable to air and thereby slowing nutrient uptake and the rest of a plant's biological processes.

Similarly, growroom ventilation and cooling systems are key components to keeping indoor plants happy and healthy. When a plant's internal temperature is too hot for a prolonged period of time, the rate of its photosynthetic processes slows to a crawl. This means less food for the plant and less yield and potency for the grower. Additionally, as the growroom temperature increases from heat emitted by HID lighting, a plant's respiration rate may increase as well—but if the temperature doesn't decrease, the plant's respiration will slow and eventually stop, shutting down the biological processes central to photosynthesis. Amsterdam growers were among the first to incorporate in-line fans and flexible ductwork to help exhaust heat and bring in fresh air. Wall-mounted fans circulate the air within the garden, and dehumidifiers further decrease high temperatures. Large-scale grow ops in the US often incorporate multi-ton air-conditioning units, usually installed on a building's exterior, to keep indoor garden temps steady, an option that is less appropriate for small urban spaces. But the principle remains the same: Cooler, steady temperatures of 68°F to 72°F provide for optimal biological functioning in plants.



Amsterdam taught us about air filtration and circulation for indoor growing.



Optimal humidity and temps are hard to calibrate in urban grows, but it's not impossible.



Lots of air and mild nutrients are required for cuttings rooting in rockwool.

Photosynthesis & Plant Nutrients

Hands down, the most important biological function that a plant performs is photosynthesis. Without this chemical process, a plant cannot feed itself. Many new growers mistakenly think that nutrients provide a plant with all the food it needs to develop. However, the truth is that these nutrients aren't consumed by the plant as food; rather, it uses the minerals contained therein in conjunction with light and carbon dioxide to produce, via photosynthesis, the complex sugars that it needs for energy and growth.

The essential minerals contained in nutrients are actually less important in photosynthesis than carbon dioxide and light. Plants growing in standard earth soil will generally have all the nutrients they need to perform their photosynthetic processes. But when it comes to plants grown in soil-less mediums or hydroponic systems, it's very important to fertilize the medium accordingly. The problem here is dosage: Hydroponic mediums offer very little buffering protection for the plant's delicate root system. Therefore, many of the nutrient programs used in hydroponic systems take a more minimalist approach.

Historically, Holland has led the way in developing top-tier nutrients designed for hydroponic systems. Additionally, many indoor growers tend to use specialized microbial agents and enzymes that are found in natural soils and aid in the plant's biological processes.

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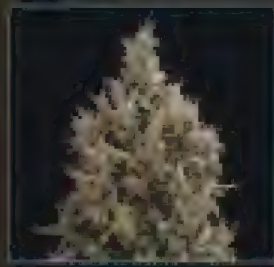
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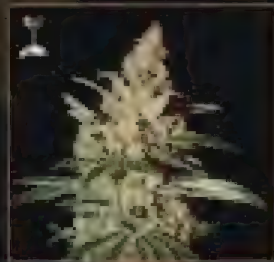
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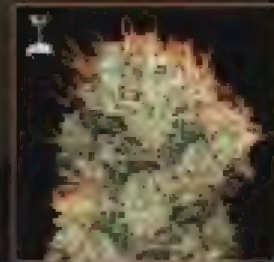
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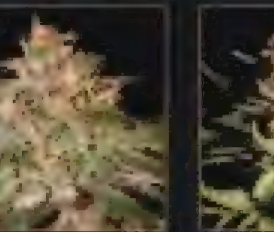
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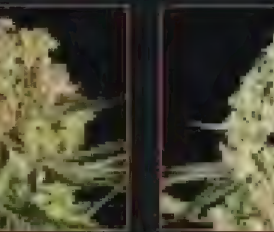
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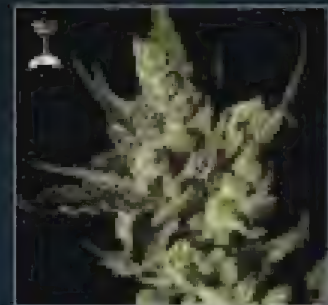
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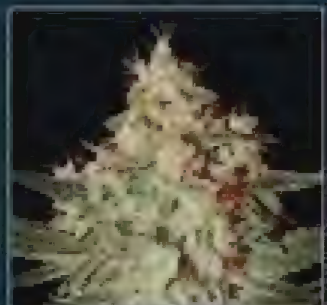
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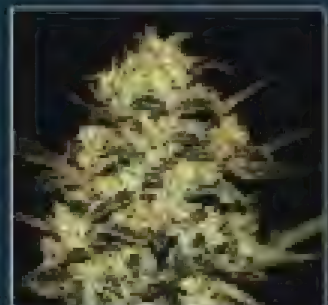
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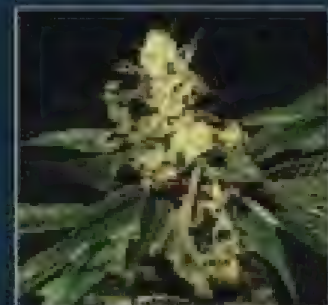
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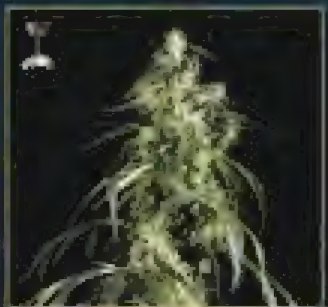
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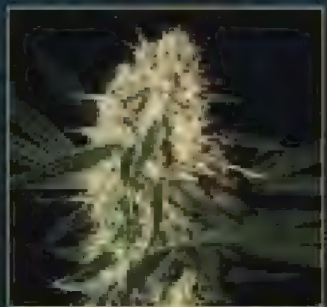
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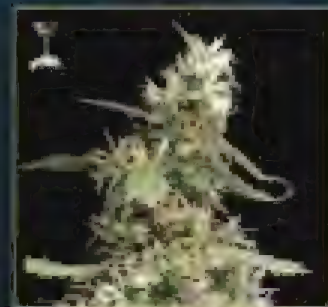
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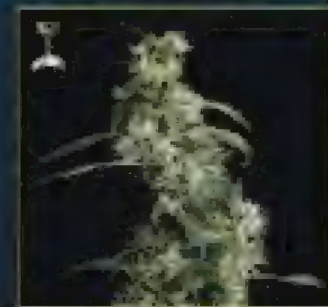
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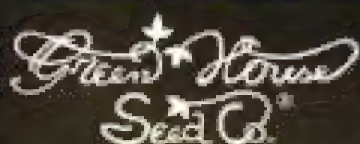


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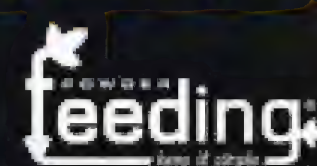
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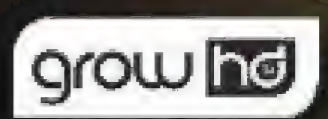
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Plant Physiology

When someone talks about plant physiology, he (or she) may be referring to varying disciplines within the field of horticulture. However, for our purposes, we want to focus on two specific areas of a plant's life: morphology, or the physical structure of the plant; and ecology, or its relationship to the environment.

The consideration of plant morphology in terms of indoor marijuana cultivation can take many forms. One of the best-known examples was developed in Amsterdam and is well-suited to the small spaces generally associated with city grows. The cultivation technique known as “sea of green” (SOG) was developed as a key component of hydroponic growing decades ago and is still prominently used, both in Amsterdam and abroad. This technique keeps plants relatively short and much thinner than usual, directing the majority of their energy to the top cola for harvest.

Plants grown SOG-style are potted in small containers and packed tightly together to maximize horizontal space. Because of this density, the containers must be much smaller than usual (sometimes as small as 1 liter). The restraint on the development of the root structure, coupled with a short vegetative time, results in plants that are generally only 2 or 3 feet in height. This allows the garden's



This Dutch SOG garden is squat and uniform, with flowering triggered early in veg.

vertical space to be used for optimal lighting placement as well as the installation of ventilation equipment and ducting.

Plants in an SOG system are generally grown from clone, not seed, and are triggered to flower after only a week or two of rooting and vegging. Furthermore, pruning and training techniques (stake

ties, etc.) can be used to keep the plants thin and upright and prevent them from getting too tall.

Taking plant morphology into consideration relates directly to ecology, because the shape and size of a plant help to determine how it functions and develops within its artificial ecosystem. A big part of a cannabis plant's development depends on how well it can translocate various elements—essential minerals, water, air molecules—throughout its structure for use in photosynthesis.

By maintaining plants at a height that is typically shorter than is found outdoors, a grower is directing the plants to become more efficient with their biological processes. The plants therefore exert much less energy moving minerals and water internally, and that saved energy can be devoted to creating more sugars (plant food) that will eventually result in higher yields (weight) and potency (trichomes).

After all, in the earliest days of indoor cannabis horticulture, most growers were forced to focus either on quantity or quality. Being able to achieve both is much more ideal—and that's exactly the type of thinking we've inherited from our forebears in Amsterdam, the motherland of marijuana horticulture. 🌿



Excellent quality and yield can be attained in urban grows with deluxe grow tents.

Plant Ecology & Grow Tents

One of the newer growroom technologies developed in Holland for indoor cultivation is the light-sealed grow tent. These thick, reinforced, threaded polyester tents now come in all shapes and sizes and boast durable, water-resistant and reflective coated interiors. They were initially developed to help indoor growers create light-sealed partitions for both vegetative and flowering spaces in growrooms set up in cramped city apartments. But grow tents were taken one step further in Amsterdam, where they became instrumental in breeding projects by smaller seed companies who decided to stake their claim in the genetic crossroads of the cannabis trade.

Grow tents have evolved from simple plastic boxes to fully scalable and customizable all-in-one growrooms. They come with all the trimmings needed to create the exact microenvironment desired by the grower, allowing for vent fans and air-filter attachments, specialized hole placement for wire management, sturdy frames to keep ballasts (and heat) outside of the tent, and even a sealed and waterproof floor-to-wall setup ideal for hydroponic systems that tend to leak water. The largest grow tents can extend over a 20' x 10' footprint, with ceilings as high as 10 feet—large enough to hang up to six HID lamp fixtures.

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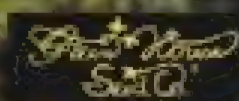
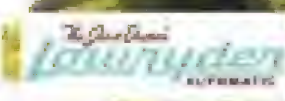
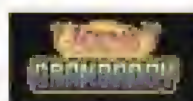
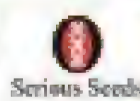
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2014 **HYDRO** Report

There are plenty of reasons to “go ‘dro,” including explosive growth rates and superior crop health—provided that you first learn the important factors as well as the proper techniques.

By Erik Biksa and Danny Danko

Why Grow Hydro?

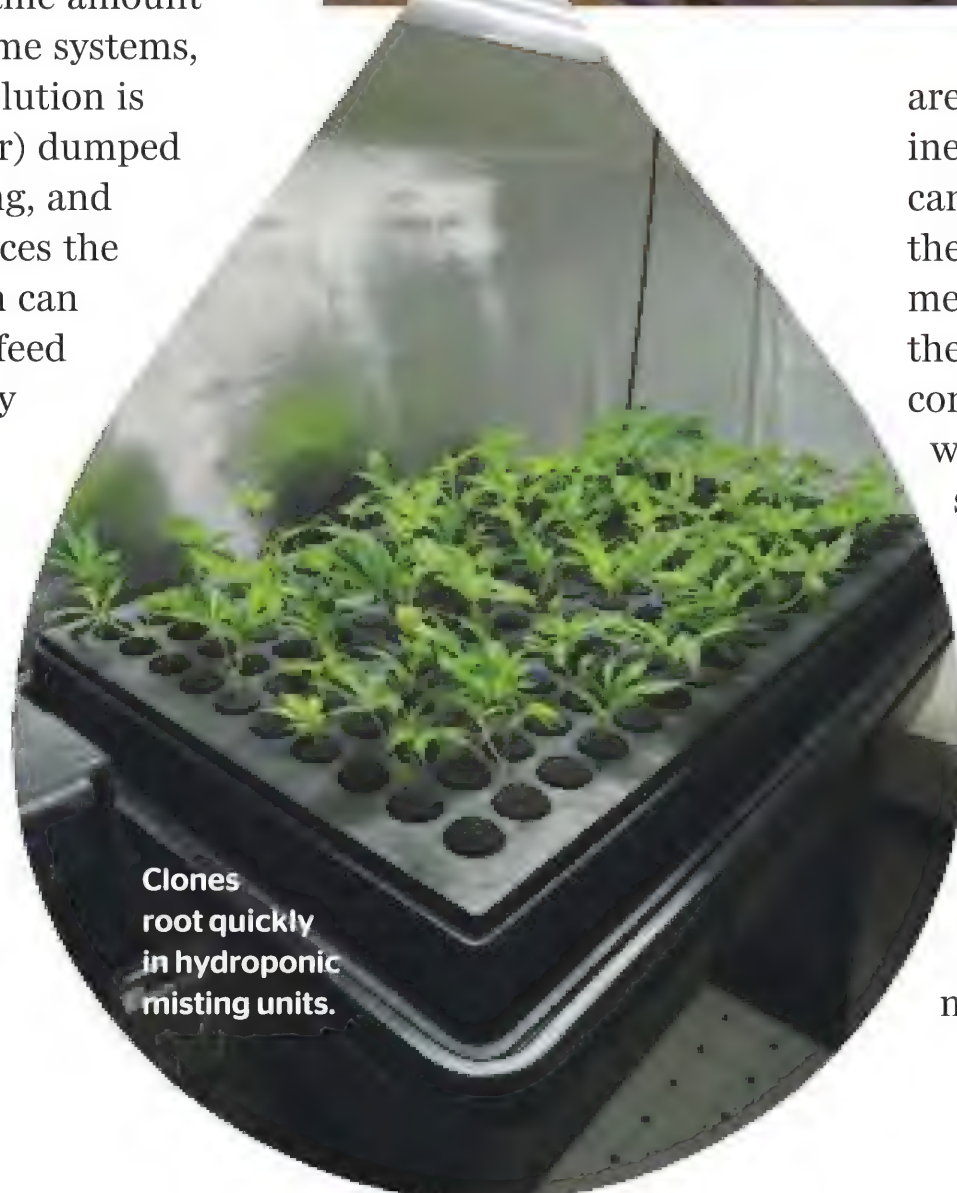
While soil is forgiving for first-time growers and allows the use of a wide variety of fertilizers and supplements, including organics, the levels of dissolved oxygen at the roots of a plant grown in soil are relatively low compared to a well-planned hydroponics system. In soil, plants have to compete with other organisms in the rhizosphere (root zone), such as fungi and bacteria, to extract nutrients and other essential building blocks—and while there are many microbes that work symbiotically with the plants, assisting them in absorbing these materials, the fact is that plants grow fastest in a sterile root environment with plenty of oxygen. Pure and uninterrupted absorption of oxygen, water and minerals provides everything that a healthy plant craves—with nobody else cutting into the chow line.

Hydroponic growing can also help to conserve water and allows for much higher yields in the same amount of space. In some systems, the nutrient solution is rarely (or never) dumped during cropping, and in some instances the “used” solution can be pumped to feed mineral-hungry plants outdoors—all of which can make hydroponics a lot friendlier to the environment as well.

Additionally, hydroponic planting mediums that



Aeration is a very important factor for healthy hydroponic growth.



Clones root quickly in hydroponic misting units.

are chemically stable and inert, such as grow stones, can be reused many times, thereby lessening the environmental footprint created by the grower. For example, consider that peat bogs, which can take tens of thousands of years to develop, are stripped to supply “throw-away” soils that are replaced with every crop. The reuse of grow stones also means that less fuel is ultimately consumed for the long-haul transporting (and frequent replacing) of your medium.

Benefits of a Sterile Environment

Maintaining a sterile environment can also have other advantages in the age of medical cannabis cultivation. Where there is a risk of microbial contamination in plants grown from soil for patients with sensitivities, in hydroponics there is no microbial life introduced from the medium—or potential pathogens and insects from other food sources—into the growing environment, because the medium and method keep that environment sterile. So in addition

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Drip systems provide roots with a constant source of food.

Mediums

By definition, water is the growing medium in hydroponics. For practical purposes, if any additional medium is used, it's simply to anchor the plants and provide contact for their roots with the nutrient solution. Here is the fundamental difference between soil growing and hydroponics: in the latter, the food for the plant is in the nutrient solution rather than the soil itself. When cannabis is grown hydroponically, it has a more direct relationship with the fertilizers and supplements you provide.

By the same token, while this relationship promises incredible crop-feeding power, it also makes hydroponics less forgiving than soil. In hydro, you can see changes in your plants within *hours*, while with soil it can take days—there's no pH or nutrient buffering in a true hydroponic medium. Grow stones and light expanded clay aggregate (LECA) are true hydroponic mediums because they don't have any buffering capacity. Coco coir and rockwool are also excellent (and popular) choices, while providing some buffering and/or ion exchange.

Some hydroponic systems use no medium at all; the plants are simply supported by plastic collars or baskets while the bare roots are bathed in an oxygen-rich nutrient solution or mist. Needless to say, fast growth and no medium to replace can be enticing benefits for indoor growers.

Water Quality

You can grow hydroponically even with water of marginal quality, but for healthy cannabis crops with increased growth rates and yields, you're going to want to use the best-quality water possible. For a lot of serious hydroponic growers, this means adding a reverse-osmosis (RO) filtration system to remove all impurities from the water that could affect the

to plants being able to grow faster in controlled, oxygen-rich conditions, we can see the other benefits: reusability, the potential for water conservation, and a greater chance of maintaining a pathogen-free environment.

Root temperature is a serious growth factor often overlooked even by seasoned cannabis cultivators in their quest for bigger yields of better buds. Every grower knows how important it is to maintain the right air temperature, which changes during a cannabis cropping cycle, for better results—so why not pay attention to the roots, too? (It pays to honor your roots!) In hydroponics, the root zone can be controlled with precision—and not just in terms of temperature, either.

All of this sounds promising enough in theory—but what does it deliver in practice?

Faster Growth Rates

For a lot of growers, especially those who follow the guidelines outlined here, using hydroponic techniques will lead to increased growth rates. That means harvesting in less time, which for serious growers or those dealing with medical necessity means shorter waiting periods between harvests and achieving more harvests in a calendar year.

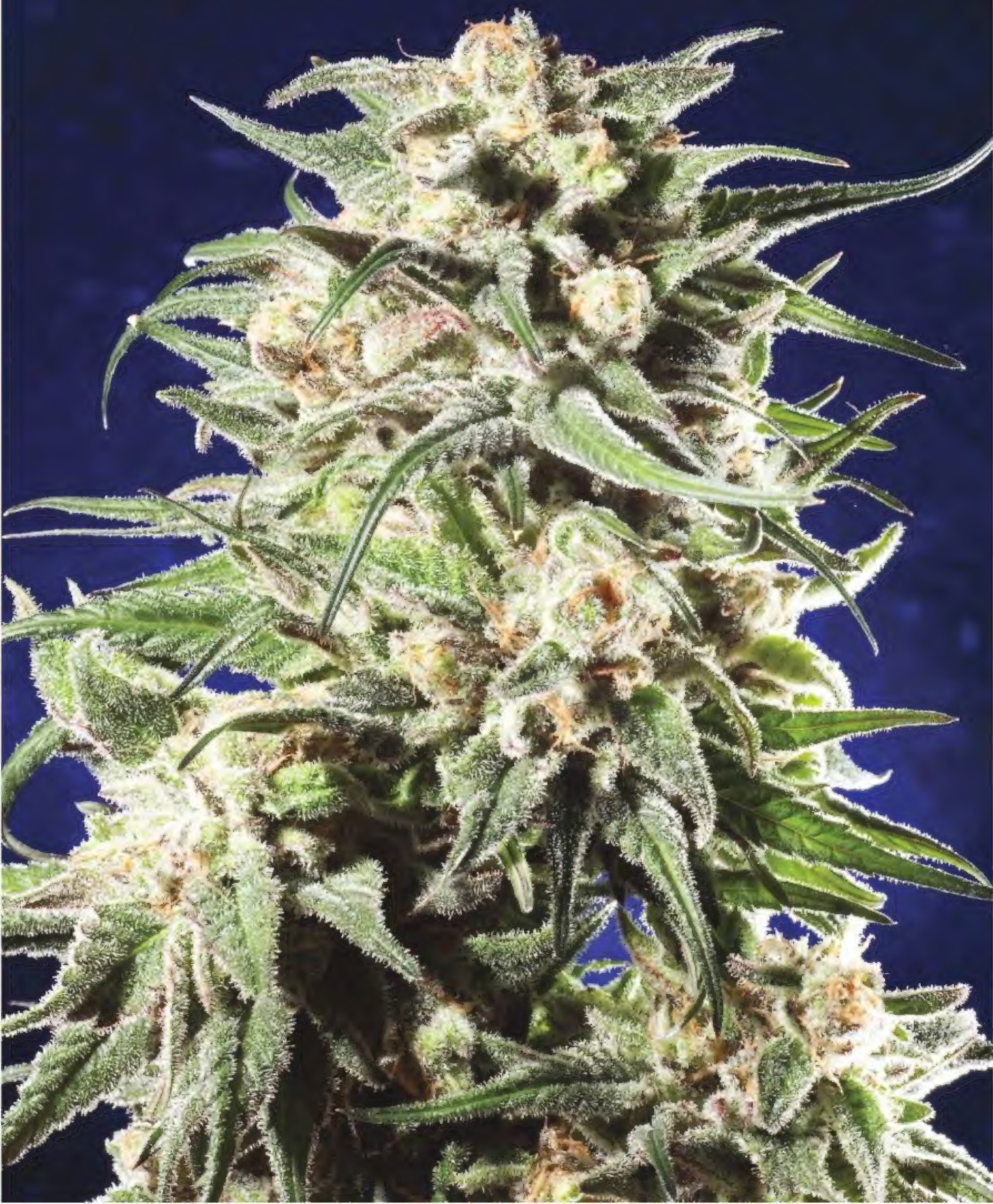
And if you get *serious* about hydro, it can mean bigger yields, too. But don't jump into the deep end of the growing pool and expect to avoid making some splashes while you get your hydro routine fine-tuned over the course of a couple of crops—especially if it's your first time getting wet, so to speak.

While hydroponic growing is a powerful tool, there

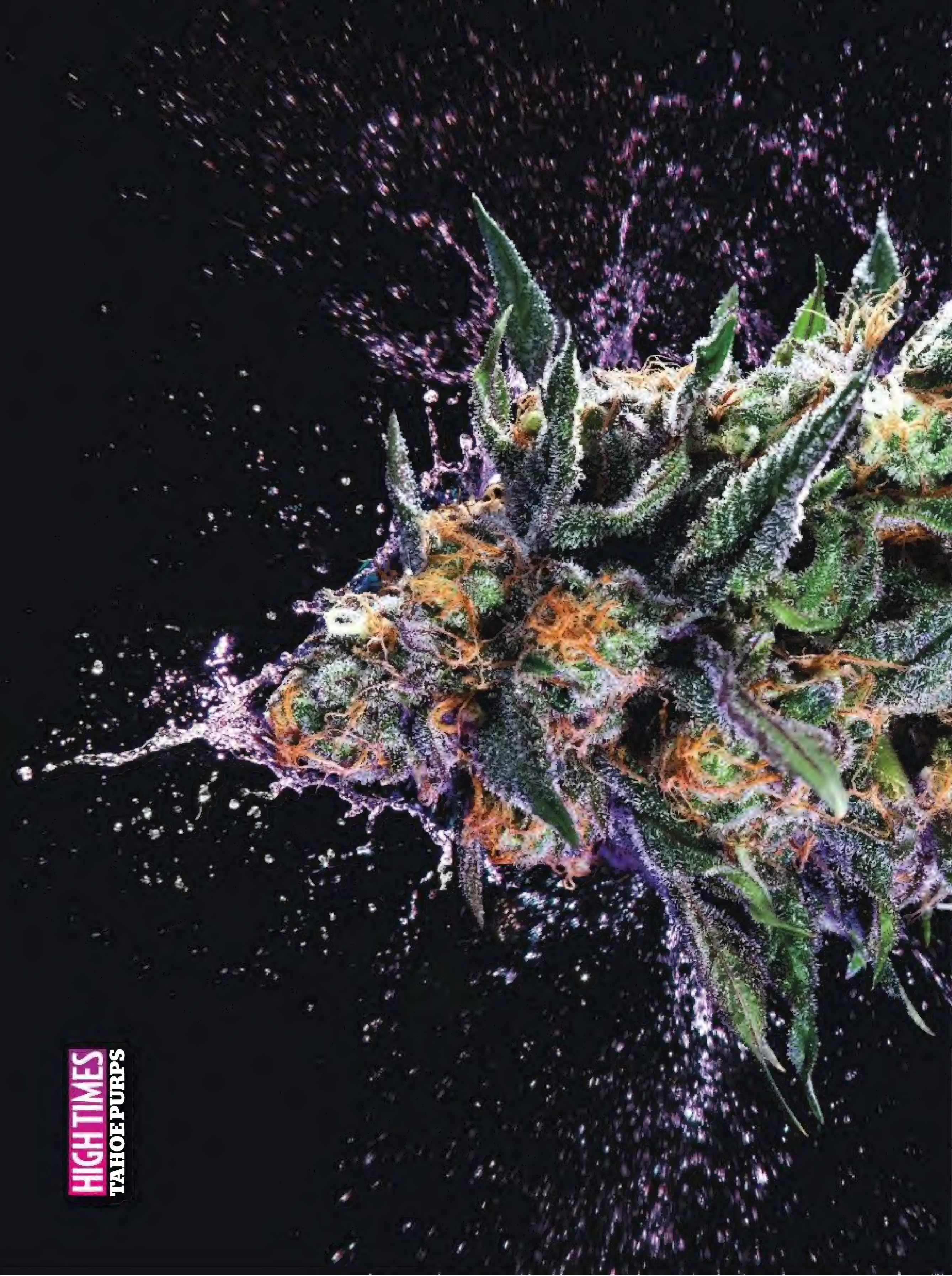
are some fundamentals that need to be learned for success. For heightened yields, it may also take some practice, although just by maintaining the basics you're almost certain to see faster growth rates, more tidy and efficient cropping, and potentially less time required in the garden—especially if you aim to eventually graduate to automated hydroponic growing.

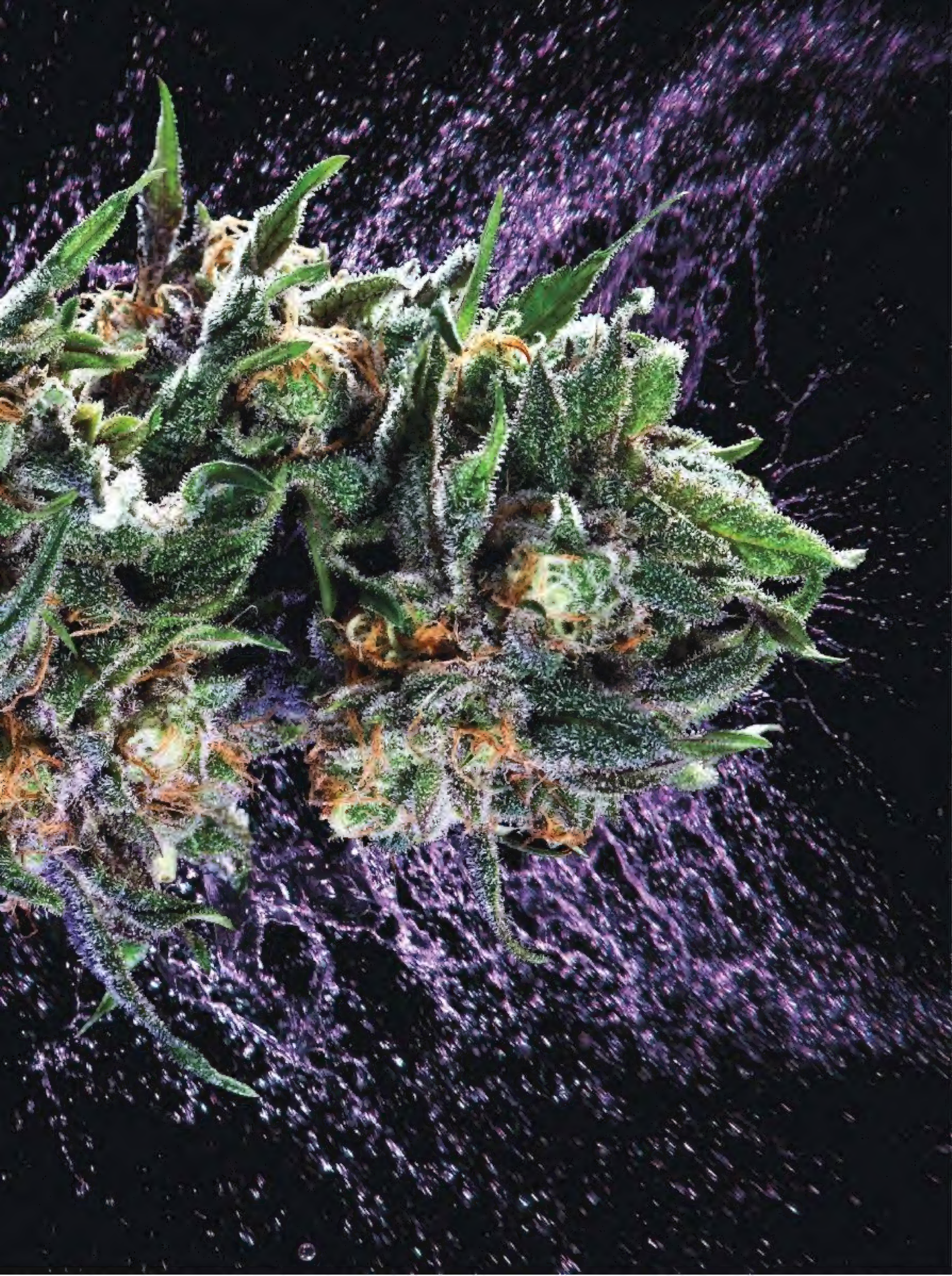
In other words, learn the essentials first, and you will see that growing cannabis with hydroponics doesn't have to be complicated or even expensive: just manage your crop, your budget and your expectations accordingly, and you'll be sure to have some fun—while reaping benefits in terms of better buds—by sticking with our hydro fundamentals.

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nutrient chemistry supplied in high-end fertilizers.

As a rule of thumb, if the untreated water doesn't taste good to you, it probably won't taste good to your plants. Sadly, some water supplies are toxic and shouldn't be consumed by anyone—especially by plants for medicinal consumption. If your water is less than 150 ppm in dissolved solids (about 0.2 EC), it's probably just fine to use with a quick pass through a sediment and carbon filter—thereby eliminating the need for wastewater-intensive RO filters.

Also, as a compromise, there are “hard water” nutrient formulations available from some manufacturers of specialty hydroponic fertilizers. Typically, they will contain less sulfur, magnesium, calcium and iron than conventional hydro formulas.

Dissolved Oxygen

This is very likely where the magic of hydroponics resides, as dissolved oxygen (DO) levels are often the most overlooked factor in generating a higher degree of health, growth and yield in cannabis plants.



One plant grown hydroponically can yield many tops quickly.

5 Must-Have Hydro Products

Nutrients: General Hydroponics

generalhydroponics.com

The original and still the best, GH nutes were originally formulated to grow plants in space for exploratory missions. Hydroponic growers can use this space-age technology to provide their plants with exactly the food they need in its most soluble form. General Hydroponics' simple-to-use nutrient solutions, especially the iconic three-part Flora mix, continue to be the industry standard due to their legendary pH stability. When the Lucas Formula (hightimes.com/lucas) is used, plants thrive without becoming overly fertilized, making flushing a breeze. The resulting buds burn as cleanly as many organically grown ones.



Vertical Hydroponic Tent System: Big Buddha Box

supercloset.com

Increase your yield without increasing your grow space's footprint by employing vertical grow technology. In the Big Buddha Box system from Supercloset, the centralized light column extends from floor to ceiling and the plants sit in three levels of grow trays. The system uses ebb-and-flow and DWC to achieve explosive growth in plants that actually grow toward the center of the tent. Couple that with the affordable yet sturdy Gorilla Grow Tents and you've got a stealthy spot to produce pot for just pennies.

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Plants with elevated DO levels at the root system are less prone to cropping problems and can use nutrients more efficiently. When super aeration is applied to bare root systems—for example, in a deep water culture ((DWC) system at a rate of 1.5 liters per minute (LPM) of air via high-output aeration pumps and airstones—the amount of fertilizer used can be cut in half, or even by as much as 75 percent, versus conventional soil or soilless growing methods.

Some growers may be astonished to learn that they can maintain *giant* plants with a scant 400 ppm nutrient concentration, simply because the plants will process the nutrients more efficiently with the super levels of oxygen available at the roots. Around 0.75 LPM of aeration is plenty, but around 1.5 LPM is when you really see things start to surge. This means you should cut back nutrient strength proportionately with the level of aeration versus standard growing methods (though keep in mind that amounts will vary from system to system and situation to situation).

However, poor aeration—especially when coupled with warmer temperatures—can spell disaster in a hydroponic system. Some strains will be more prone to root rot than others, although it's wise



to take every precaution: Anaerobic conditions can be your number one threat in hydro versus soil gardening.

Besides pumping air into the solution, moving the solution through the air—i.e., the nutrient return splashes into a reservoir—is a highly effective way to introduce more oxygen into the solution and, ultimately, to the roots of your cannabis crops. If you maintain a reservoir, adding a small circulation pump to keep the solution stirred (especially between applications, as with flood-and-drain setups) will help to improve growth rates and cut down on problems by making more DO available for the roots. In this respect, it's much like an aquarium, where the fish need oxygen in the water.

Root-Zone Temperature

While worrying about air temperatures up top, a lot of growers overlook what influence temperature has down below, at the root zone. Hydroponics affords a level of precise temperature control at the roots via the nutrient solution's temperature and the overall volume of solution that surrounds the roots. For example, if your growroom runs warmer than optimal, keeping the roots bathed in a highly oxygenated and chilled nutrient solution can provide the necessary balance for healthy growth.

Plus it's more efficient, in terms of electrical consumption, to keep the root zone a few degrees cooler with a reservoir chiller than it is to cool the entire growing area.

In nature, the soil stays an even, cool and comfortable temperature—even when it's sweltering up top at noon. The same principle applies here.

The fact that cooler water holds considerably more dissolved oxygen than warmer water is another big plus for having a reservoir chiller. At the same time, however, cool basement floors in the winter-time can hurt growth. If the root-zone temperature stays below 65°F, nutrient uptake can become limited—so while you don't want your plants' roots to overexert themselves in the heat, you don't want them to hibernate, either. An aquarium heater can keep the reservoir temperature steady at whatever set point you desire during the cooler months. Most growers find a reservoir temperature of 67°F to be optimal.

TIP:

To promote brighter colors and firmer buds at harvest, instead of trying to cool your whole growroom down, you can simply chill the plants at their roots. Purples show up in days instead of weeks when you chill your solution below 57°F during the final days of cropping before buds are harvested—for example, during the flush period. The extra stress can contribute to a higher resin content, too.

5 Must-Have Hydro Products

(Continued from page 80)

DWC Unit: The Green Tub

hydroponicsgroup.com

Roots that sit in an aeroponic nutrient mist exhibit tremendous growth rates, resulting in huge yields fast. The Green Tub from Hydroponics Group is a durable six- or 12-site system that takes up less than 2 square feet of floor space yet can grow a nice, heavy harvest. A misting timer ensures that the roots are sprayed for 15 seconds every 30 minutes for optimal absorption of the highly oxygenated solution. The units come with all the necessary pumps and timers as well as a hydro-pellet medium. Stack a bunch of them side-by-side to create a hydroponic "sea of green."

Gravity-Fed System: Easy 2 Grow

discount-hydro.com

For under 75 bucks, you can't beat the production of the Easy 2 Grow Gravity Feed 2 Pot System. No electricity is necessary, as the units use gravity to provide the perfect amount of water whenever necessary. This is a self-watering system you can walk away from for a month if need be (not recommended). Simply top off the tank every couple of weeks with nutrient solution and let gravity do the feeding for you. 2 Pot extension kits allow you to feed up to six pots from one reservoir if you wish to expand.

Grow Medium: Black Label Expanded Clay Pebbles

shop.growblacklabel.com

Choosing a medium can be daunting: After all, you're stuck with whatever you pick for at least one growing cycle. One of the most beneficial mediums we've found are the expanded clay pebbles from Black Label. They come pre-washed, without all the dust that typically accompanies grow rocks. Plant roots are provided with the maximum amount of oxygen due to the increased surface area. As a bonus, the pebbles can be reused several times as long as they're rinsed and decontaminated properly.

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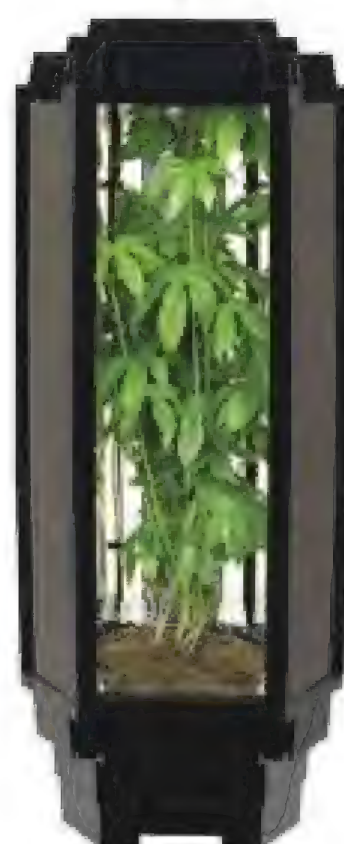
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
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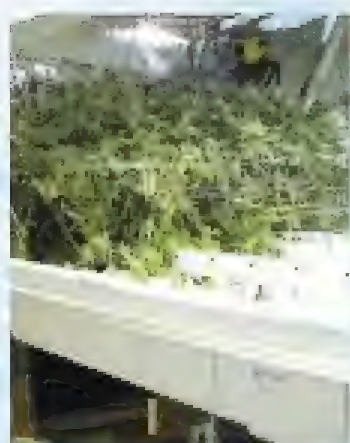
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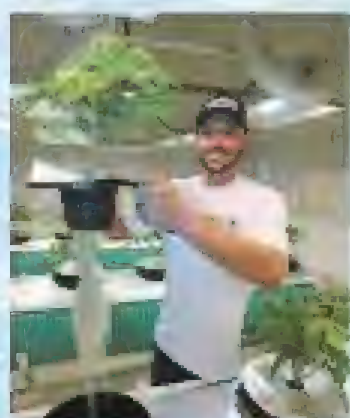
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Hydro Systems & Methods

There are many different hydroponic systems available to the budding hydro grower, but in almost every instance they'll be based on one or more of the basic types described below, each with its own inherent advantages and limitations.



Flood-and-drain (or ebb-and-flow). This system is highly adaptable to different growing mediums, containers or blocks (or even bare roots with a supporting lid). You can vary planting densities easily as well. However, because you'll be using a growing medium nine times out of 10, you trade away the potential for achieving maximum dissolved-oxygen levels at the roots. Also, a plugged drain port or pump failure can spell disaster in this setup.



Deep water culture (DWC). There are a few variations on this theme, but in essence, bare roots are suspended and supported in a highly oxygenated nutrient solution. There is no growing medium to buffer pH or nutrient availability. Salt build-up and excessive root temperatures are the most common problems that growers have with straight DWC. In a recirculating DWC system, these pitfalls are more easily avoided.



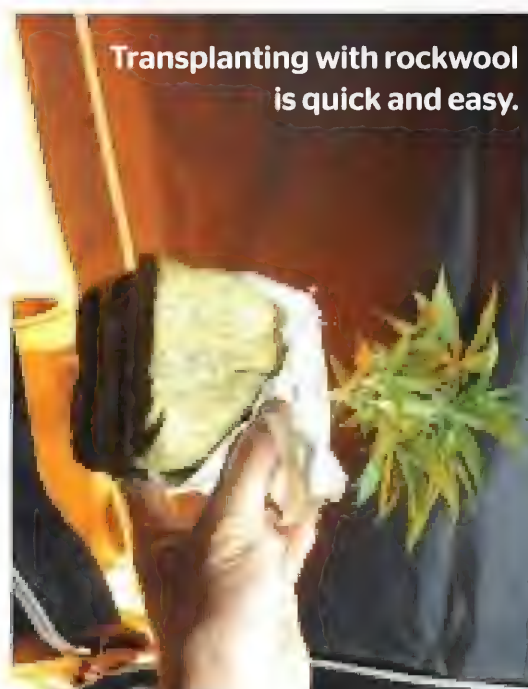
Drip-feed. This system is super-flexible and may be run as a drain-to-waste or recirculating setup. Just about any growing medium or container size can be used in a drip-feed system with success. With a loose medium like rockwool or grow rocks, you can still get plenty of oxygen at the roots while having some protection against pump failure. However, clogged drip lines—which occur easily—can withhold water and nutrients from the plants, leading to potential crop failures.



Nutrient-film technique (NFT), a.k.a. tube systems. This is a pure hydroponic system, as the plant roots are bare and sit in a shallow flow of nutrient-rich solution. The plants are supported by net cups in runs of tubing or channels that enclose the root system, supporting the plants and keeping light out. This setup is great for short plants and fast harvests. However, problems can occur once the channels fill with roots and the nutrient-solution flow slows down as a result. This system is best for quicker cropping schedules.



Aeroponics. This could be called “hyperponics” because of the growth rates that can be achieved when the system operates successfully for an entire crop. In aeroponics, plant roots are sprayed or misted with a nutrient-rich fog rather than immersed in the nutrient solution. The result is an incredible amount of oxygen that can be delivered to plant roots for potentially astounding growth. The one drawback to this system is that the misters clog easily, and they are usually located in the root zone, where you can't see or access them easily.



Transplanting with rockwool is quick and easy.

pH

The main reason that the relationship between the plant and the nutrient solution is so direct in hydroponics is because there's nothing to get in between the nutrients and the roots. Cannabis plants absorb nutrients at different rates, depending on pH. (Keep in mind that pH is a scale that runs from acidity, or low pH, to alkalinity, or high pH.) In hydroponics, depending on the medium and the growth phase, the optimal pH is usually around 5.8. In most hydro systems, growers will have to work at keeping the pH from climbing up past 6.3. This can be done via automation (doser pumps and monitors) or simply by taking measurements with a pH tester and adjusting the nutrient solution with either a specialty pH Up or pH Down product. For this reason, some nutrients are much better suited to hydroponics than others—something we'll address in our section on hydroponic nutrients.

EC/TDS

Electrical conductivity (EC) and total dissolved solids (TDS) are the most common terms used when discussing the relative and measurable concentration of the hydroponic solution you're feeding to your favorite plants. The concentration changes as the plants use up nutrients in the solution, and when water is added. If the concentration

is too weak, then the plants grow slowly and yield poorly. Too high a concentration can be even worse—i.e., buds that smoke harsh and won't burn, plus a low-yielding crop. Plants start off needing less food when young and reach their highest level of demand during mid- or peak budding. Even so, their feeding requirements (and thus the concentration of the nutrient solution) begin to taper off as the plants reach maturity, and usually only plain water is applied during the last three to five days before harvest in hydroponics. Also, flushing hydro crops is a much quicker and easier process than flushing soil-grown plants.

Hydroponic Nutrients

In hydroponics, especially recirculating setups, using a mineral-based solution is recommended over organic solutions. Soil is the place for organics, where ingredients can break down further with the help of microbes and be released through the roots for improved plant growth. In hydro, this would create a biological funk, because there is no soil to buffer this long-term reaction.

Ideally, in a hydro setup, the root zone will remain sterile and the nutrients will be supplied in their most available forms, by way of minerals rather than biological ingredients. In doing so, you'll see faster growth, healthier cannabis plants and more consistent results. Some new products in the hydroponic marketplace actually introduce a special type of chlorine-based molecule into the solution, helping to keep the roots sterile without causing any harm, as the chlorine molecule quickly and safely breaks down after it's done the job. Simply add a little to your reservoir every few days, and increase the dose in warmer growing conditions. ✨

Check out a DIY hydro grow system with Danny Danko at hightimes.com/evergreen.



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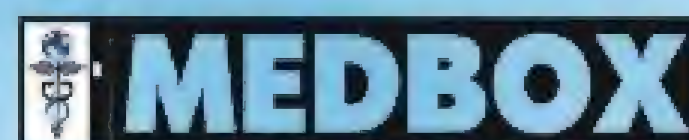
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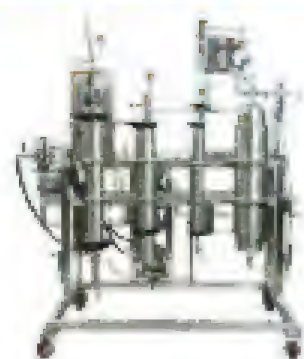
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Trimmers at The Clinic help ready batches of marijuana.

How to Open a Pot Dispensary

Colorado's seed-to-sale laws are complex, and fully complying is anything but easy. No business has navigated the state's pot laws with more success than The Clinic—which only proves that it takes more than a green thumb to operate six Denver dispensaries.

By Jen Bernstein. Photos by Dan Skye

So your bags are packed, the U-Haul is loaded, and you're ready to join the thousands who want to try their luck at starting a marijuana business in Colorado. It's a *big* business: CNBC estimates that, nationwide, cannabis may be as much as a \$45 billion industry these days. And as of January 1, 2014, anyone will be able to walk through the doors of a pot dispensary in Colorado and purchase their first bag of legal weed.

Thanks to legalization, Colorado medical dispensaries that have successfully applied for special licenses will be able to sell recreational pot to the public. But

the cost of marijuana retail sales ain't cheap: Dispensaries and cannabusinesses can expect to shell out tens of thousands of dollars on application fees and operating licenses. The residency requirements and background checks that business owners have to pass are a given, but not just anyone can start selling pot legally. Currently operating dispensaries have the advantage, since they can convert from selling medical pot to card-holding patients to serving recreational smokers. Interested would-be dispensary owners starting from scratch will have a tougher time—new applications for businesses won't even be considered until 2016,

according to Colorado state legislators.

The transformation from operating a medical pot dispensary to operating a legal marijuana store will not be an easy one—just ask Ryan Cook, general manager of The Clinic, which operates six dispensaries in Denver.

In July of 2011, Colorado's Medical Marijuana Enforcement Division (MMED) passed regulations intended to monitor and account for every ounce of pot legally produced in the state. One new law required each cannabusiness to produce 70 percent of its product (the remaining 30 percent could come from other Colorado growers or dispensaries.) Another

regulation that took effect created a seed-to-sale program: From the moment a seed is planted to the moment the resulting bud is sold in a dispensary, every plant must be tracked through each stage to the final packaged product.

The Clinic operates its six dispensaries and multiple growroom facilities in compliance with the MMED. When a Colorado patient is prescribed medical marijuana, they can select a dispensary, such as The Clinic, to grow their medicine—up to six plants per patient (approximately two ounces). Colorado currently has more than 100,000 patients.

Medical marijuana inspections are random and can happen at any time. When inspectors visit a medical marijuana grow, they want to know the number of plants onsite, how much plant matter is drying (dry weight), total cured weight, and how much is ready to ship. Inspectors may even request to see a specific patient's plant in what can be a very full or disorganized warehouse. Cook prepares for these unannounced visits by performing mock inspections with his staff. "I'll pull up the patient list and ask an employee to go and locate a patient's plant," he says. "The systems are quite complicated, but when we can show the general location of a plant or answer



Colorado state laws and regulations require that dispensaries track every step of the seed-to-sale process.

The Clinic can track down to 1/100th of a gram—a weight so small that it's hard to imagine.

any question—I watch the med officers stand back in awe."

To track each plant, The Clinic uses a tag that includes patient ID, dispensary ID, strain information and the date it was planted. The tag stays with the plant from harvest to drying, packaging and delivery. Cook estimates that one plant passes through 25 sets of hands during the process.

The Clinic takes its system a step further by tagging plants with color-coded flags. "When a med officer walks in and sees a sea of flags that are all different colors, he'll be able to identify different Clinic locations and destinations for the harvested plants. It helps them visually understand our process," Cook says.

Amazingly, every single leaf is accounted for in The Clinic's operation under the seed-to-sale law. Its methods are so fine-tuned, The Clinic can track down to 1/100th of a gram—a weight so small that it's hard to imagine.

In the end, being required to keep meticulous logs doesn't bother Cook, the growers or the operation. Keeping daily, weekly and quarterly records that analyze the grow locations, strains and yields has been useful in helping him determine best practices and how to successfully run the business.

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“Those numbers are important for the state, but they’re also important for us to continually better our product and the growing, curing and trimming process,” Cook says. “At the beginning, we wondered: ‘Why would you want to track all this information?’ But three and a half years down the road, we’re like, ‘Thank God we tracked all that!’—because that’s how we now analyze our business. This is how we create our next concept—we ask ourselves, ‘What’s the most efficient way to build one of these grows?’”

When Cook opened the first Clinic in 2009, he had a total of six employees—mostly a team of friends from college that he assembled after finishing architecture school. “Some were engineers, some studied real-estate investment—and we literally gave it all up to do this,” Cook says. They called everybody they knew and asked if they were willing to get involved in a medical marijuana business. Cook knew it was a big risk. “We didn’t know what was going to happen with this industry. But we said there was a potential upside and that we’d love for them to take part.”

The return on investment has been solid: The company now has more than 80 employees. The Clinic offers full



Ryan Cook, general manager of six dispensaries in Denver, has won multiple Cannabis Cup awards.

benefits including health, dental, vision, a 401(k), paid vacation and “all the kinds of things you would expect to get out of a larger corporation,” Cook notes. The business has received accolades from the *Denver Post* and the *Denver Business*

Journal as one of the best companies to work for in Colorado, and it’s also taken top honors at three High Times Cannabis Cups, including first- and third-place *sativa* and third-place hybrid.

Taking a tour of The Clinic’s growroom was a once-in-a-lifetime opportunity, as I was one of only four “outsiders” that have actually seen the operation. Guests are asked to sign a register and wear a badge to gain access beyond the locked doors (specialty locks are required), where Orwellian-style video cameras monitor each room, as is required of any state-approved medical marijuana operation. Access is limited for many reasons, safety among them.

Cook maintains a strict harvest schedule in order to meet the needs of all six locations with a steady supply of medicine. But with four to six rooms of plants in varying stages of growth, ensuring a constant supply can be tricky. Offering the best medicine requires planning and availability. For example, harvesting everything at once could mean that the product sits on shelves longer and deteriorates before the next harvest. Also, the growth cycle of some strains can mean that without proper planning, a patient might wait 55 to 70 days until the next crop is ready. And

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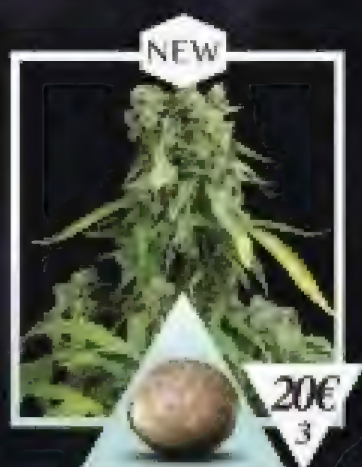
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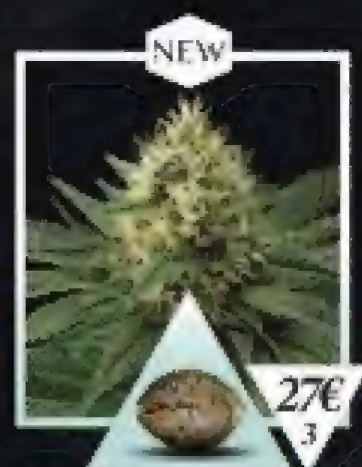
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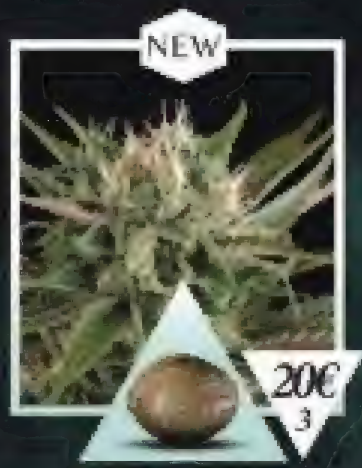
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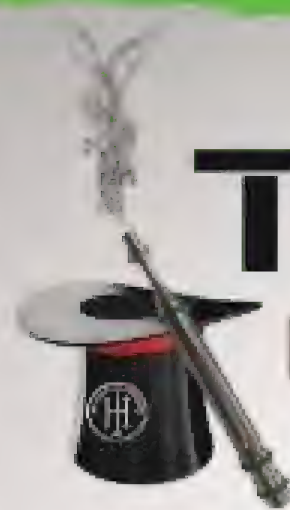
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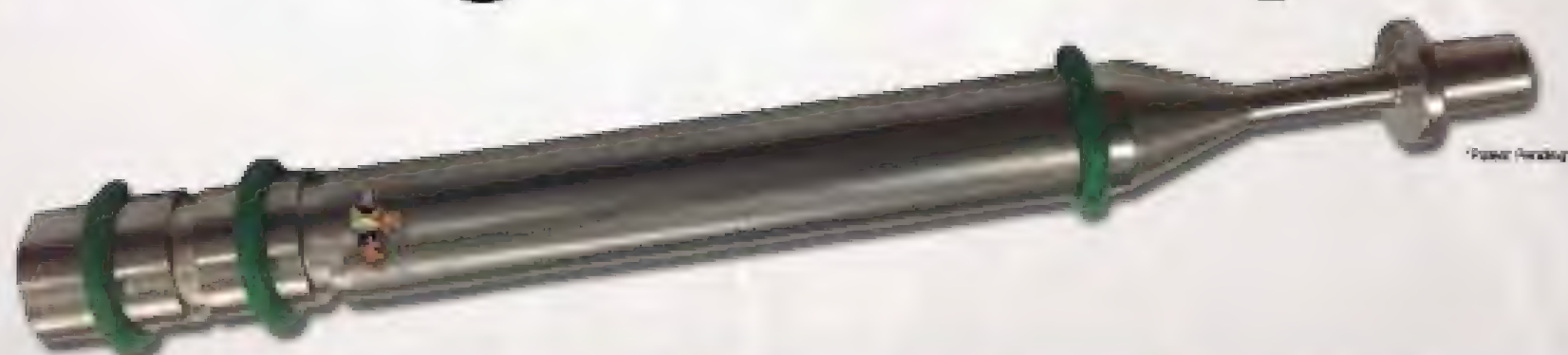


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Recently harvested plants are tagged and grouped by batch number, ready to be trimmed.

nothing ever goes quite as planned: If a clone dies, it could set back the schedule by six months, and throw off store inventories.

The first step in seed-to-sale starts in The Clinic's clone room, where the well-tended

babies are tagged before being moved to the veg room. The Clinic's workers enter numbers into a spreadsheet to monitor every step of growth. Using a batch number that's assigned to a certain group of plants—say 10 Sour Diesels—they can

track five of those plants headed to one Clinic location and five to another. The batch number is attached to each plant throughout the entire process. Batch numbers track where in the growroom a plant is located and, when it's purchased, the number can also be seen on the patient's bag of medicine.

In The Clinic's growrooms, the real tracking fun begins at harvest, when the plants' wet weight is measured using a scale hanging from the ceiling. The gross weight is entered on a spreadsheet with the weighing date and when the plant was cut. Then the plant's fan leaves are removed and collected for waste recycling.

The Clinic uses grow software called MJ Freeway that organizes and tracks all of the information once a plant is harvested. It also keeps a daily log that records the amount and strain of plants on the production line, which tent they're drying in, and what dispensary they're going to. "We have to have the totals of how many grams, ounces, pounds are curing at any time on hand for the MMED or drug task force. We always have to be prepared—even tracking the weights of the trim," Cook says. "We have to keep those batch numbers, and" As he trails off, I can see just how complicated keeping track of every last

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1/100th of a gram can be, and how literally it weighs on him.

Just-harvested plants are dispersed throughout the warehouse to tents housing a range of humidifiers and fans. Each grow location tracks inside temperature, outside temperature and humidity levels. And they all keep a watch on the weather, since humidity is one of the biggest environmental factors: In Denver, it may be snowy and damp one day and sunny and dry the next.

After drying in the tents for a maximum of 10 days, the tagged plants are weighed once more to account for any moisture they've lost before finally reaching the trimmers' hands.

During trimming, another form is filled out, on which all of the trim, shake and waste amounts are tracked and the final weight of the batch is recorded. After the trimmer manicures and shapes each bud, the nug is placed in a Tupperware bowl along with the tag. From here, the batch goes on to bagging, where eighths are weighed out, nitrogen-filled and heat-sealed so that the final product is at its freshest when it arrives at the dispensary.

Marveling at all the information his grows have amassed, Cook can't help but



A Clinic employee carefully weighs out marijuana before packaging.

be impressed. "We can pull up all this data and say, 'If I'm going to start a new warehouse, exactly how many plants do I need to produce this much product? And how much trim?'—because I want to know how much bubble hash I can make, how much wax. We can give you those breakdowns."

Once finished, the bags of medicine are ready to be shipped to The Clinic's stores, where they're weighed again, placed in plastic bins, labeled with shipping forms and marked on a master list. With state approval, couriers may drive and deliver as much marijuana as The Clinic has grown, as long as each package is divided into one pound increments. Once at the store, the manifest is finished and inventory management happens in real time.

If you think the seed-to-sale process finishes here, you're not quite right. There's one more step, and Cook has a story to tell about it. You may think that 1/100th of a gram is too small an amount to pay attention to, but it's not a joke: Cook was at a Clinic store on the day of a random inspection. The med officer walked up to the counter, pointed at a scale and asked, "Who's accounting for this?" The tiniest morsel of pot had spilled, but as Cook can tell you, it all adds up over time—and yes, there is a regulation for waste weight which has to be recorded and properly disposed of. So, if you're ready to play with the Colorado big league, brush up your seed-to-sale knowledge and enjoy all the profits of legal marijuana. ✨

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Inside the Anti-Pot Illuminati

Last September, in the land of California, an elite group of pot prohibitionists met to discuss strategies for reversing the progress that medical and recreational marijuana have made toward legitimacy. Marijuana activists staged a protest at the gates, and one lone dope journalist attempted to crash the party. *By Chris Simunek*

Weird Scenes in Rancho Cucamonga

Main Street in Rancho Cucamonga at 8:30 in the morning is no place you ever want to find yourself. In fact, you might do best to avoid this prefab shopping mall at any hour. But we all have our mistakes to make. This journey was one of mine.

I was still on New York time, up early. My photographer, Paynie, was supposed to meet me, but not for a while. I sat outside the gated Macy's, across the street from the shuttered Pottery Barn, thinking what strange terrain this was for a battlefield. In front of me, a statue of a lamb sprayed water out of its back, as if Dr. Moreau had crossed its DNA with that of a humpback whale. The fountain

sat in the center of a perfectly square patch of perfectly green grass. Around the perimeter was a chain with a sign hanging from it that read: "Please Do Not Touch Chain."

Music radiated from everywhere and nowhere at once—pop standards by Frank Sinatra, Peggy Lee, Nat "King" Cole—transmitted from speakers hidden in the foliage, so that the rhododendron next to you crooned like a postwar version of Moses' burning bush. It was as though the architects of this bit of sprawl had attempted to re-create an era when California was a more perfect place, a time before the hippies, before Manson, before drugs. Given that context, it was

the ideal location for the First Annual National Marijuana Policy Conference, a two-day prohibitionist think tank co-sponsored by the Coalition for a Drug-Free California, the National Narcotics Officers' Associations' Coalition, DARE and others, the stated purpose of which was "to measurably reduce the impact of marijuana and reverse current efforts to legitimize the drug." They, too, wanted to roll back the clock.

It was advertised as a public event, so I bought a ticket, only to have my payment refunded two days before I was supposed to get on a plane. My emails to the organizers went unanswered. After asking around, I made contact with a

marijuana activist named Lanny Swerdlow, who informed me that about two dozen other people in the pot movement had been similarly banned. He was pissed off—livid at the thought that public servants from across the country were flying in on the taxpayers’ dime to attend a conference whose stated purpose was to overturn voter-approved referendums. Behind this attempt to subvert the will of the American people, Lanny explained, was a man named Paul Chabot.

In an inspired burst of activism, Lanny applied and received a permit to hold a counter-rally at the entrance of the event. This must have sent the organizers of the First National Congress of the Ecumenical Paraquat Society (or whatever it’s called) into a state of acute cannaphobia, since they soon circulated a disinfo email to pot activists falsely claiming that the venue had been switched to another location due to “a threat of disturbance from the radical drug legalization groups,” and noting that “one of the key protest organizers has been investigated for child pornography.” (This was a direct dig at Lanny, who used to run an alcohol-free club for gay teenagers in the ’80s and ’90s, a few of whom made a dirty video of themselves that they were apparently very proud of, because they showed it around. Lanny was out of town at the time and never charged.) The last line of the email read: “As we all know from research, marijuana causes significant mental problems—and we clearly do not want to be near a crowd of people with mental problems, who exhibit a failure in judgment and propensity for violence.”

As I sat there watching the stone lamb ejaculate water out of its spine, I thought that perhaps an epic, violent confrontation would be a welcome catharsis for both sides. Maybe we needed a Waterloo, a Stalingrad, to end this decades-long battle. Bullets would fly, dabbers’ blowtorches would be retrofitted into flamethrowers, and blood would coagulate in the gutters of Rancho Cucamonga. A winner would be declared, and as a palm tree in the courtyard sang “Day-O,” the ambiguities surrounding the legal status of marijuana would be resolved once and for all.

The Ballad of Paul and Lanny

There are people who believe that America can be a more just land. They are called “activists,” and they dedicate their lives to realizing a truer delineation between right and wrong. Two such individuals are Lanny Swerdlow and Paul Chabot.

They happen to be bitter enemies.

Paul Chabot, 39, is an Iraq War veteran, has worked for the White House Office of National Drug Control Policy, and is currently a lieutenant commander with the United States Navy and a reserve deputy sheriff in San Bernardino County. He is the founder of the Coalition for a Drug-Free California, which organized the event in Rancho Cucamonga, and the author of the book *Eternal Battle Against Evil: A Comprehensive Strategy to Fight Terrorists, Drug Cartels, Pirates, Gangs & Organized Crime*.

Lanny Swerdlow, age 67, founded the Brownie Mary Democratic Club in June 2012, the first marijuana interest group ever to be officially affiliated with a major political party in California, and possibly the nation. It was Lanny’s con-

I imagined some kind of psychosexual ritual, with bluebloods in robes and masks gorging themselves on Big Pharma-donated sample packs of Adderall, OxyContin and Cialis and then letting their anti-freak flag fly.

tention that pot activists had to start working with politicians on a grassroots level in order to push their agenda forward. As a model, he looked to the gay community, figuring that its work with local Democratic committees was the secret to its success. (Brownie Mary—real name Mary Jane Rathbun—was a legendary figure in both pot and gay activist circles, a lady in her seventies who delivered medical marijuana confections to AIDS patients in the ’80s and ’90s.)

Given the antithetical nature of their competing visions, it’s not surprising that these two would one day meet on the ideological battlefield. What is unique is the level of animosity that exists between them, a mutual odium that extends from an explosive first meeting six years ago that ended with Lanny in handcuffs. The circumstance was a meeting of Paul Chabot’s Inland Valley Drug Free Community Coalition here in Rancho Cucamonga. Lanny had contacted the organizers and was told he was welcome to attend. The chivalry was not destined to last. As Lanny tells it, after he entered the room, Paul freaked out, words were exchanged, 911 was called, the police

arrived with wailing sirens, Paul told them that Lanny had pushed him, and Lanny was arrested for battery.

“I went through a year-long criminal prosecution and a four-day trial that cost taxpayers \$35,000,” Lanny told me, “and after about a 90-minute deliberation, the jury found me not guilty.”

But Lanny was still pissed. He went to the DA’s office and tried to get them to charge Paul with perjury, but nothing came of it. Undeterred, Lanny filed a civil suit against Paul for false arrest and malicious prosecution. Paul countersued for damages relating to the alleged battery. Paul was found guilty of false arrest, but not malicious prosecution, and Lanny was awarded \$5000—a tad shy of the \$1 million he was seeking. Paul’s countersuit crapped out entirely. Chabot, when interviewed for this article, opted not to comment on the matter, as he plans to file further charges against Lanny.

Showdown in a Faux Town

Lanny’s anti-anti-pot rally got under way—50 potheads surrounded by 20 cops, all being broiled alive in the 95°F heat. Speakers ranging from the eloquent (Diane Goldstein from Law Enforcement Against Prohibition) to the bizarre (a hippie singing an a cappella version of “For What It’s Worth” that included lines about Paul Chabot) decried the persecution of the pot smoker, the medical patient, the dispensary owner, while in the building behind us, protected by crowd-control barriers and armed guards, the Anti-Pot Illuminati plotted the further subjugation of our kind.

What exactly were they doing in there that such lengths had to be taken to prevent witnesses? I imagined some kind of psychosexual ritual, with bluebloods in robes and masks gorging themselves on Big Pharma-donated sample packs of Adderall, OxyContin and Cialis and then letting their anti-freak flag fly.

Paynie, my photographer, finally showed up and had the foresight to bring a cooler of beer. This was the first time we’d met in person, though we’d been working together from separate coasts for years. He was an Englishman, it turned out. Sipping Kirin Ichiban from our Starbucks cups, we discussed a strategy for infiltrating the conference.

“Let’s just storm the gates,” Paynie suggested.

“We’re surrounded by armed pork,” I noted.

“But don’t you want to witness it? The death rattle of prohibition? Don’t



Clockwise from top left: Pro-cannabis forces reporting for battle; the author in Prohibitionist camouflage; save the women and children first; drug warriors waiting for the Dunkin Donuts to open; a last-minute strategy session before the battle begins.

you want to see the looks on their faces as they grapple with the fact that their power is waning state by state, every day of the working week?"

Entering the building, we demanded to speak to a representative from the Allied Forces of Cannabinoid Interdiction who could explain to us why we, the media, were being barred entry to this event. A guard explained that there was no one there for us to talk to at the moment and then escorted us back outside.

"Let's go back to the hotel," I suggested. "I have a Plan B."

Penetration in the Sheraton

When booking my trip, I'd reserved a room at the Sheraton, as suggested on the First Millennial Convocation of Anti-Cannabis Crusaders website. I'd even taken advantage of the event's package rate. That evening, an afterparty was being thrown by the law firm Best, Best & Krieger. BB&K has made a fortune defending cities in California hoping to rid themselves of the medical marijuana menace, and it was responsible for the California State Supreme Court decision, *The City of Riverside v. Inland Empire Health and Wellness Center*, which ruled that cities have the right to enact zoning

I had penetrated the garrison of the Anti-Pot Illuminati and found a party so boring it would make bingo night at the Kiwanis lodge look like a Kiss concert.

laws banning pot dispensaries.

To increase my chances of assimilation, I'd bought a T-shirt bearing the lip-curved likeness of the godfather of the American Drug War, Ronald Reagan. The instant I appeared in the lobby, a mature lady with blonde hair, a pronounced chest and a Virginia drawl saw my shirt and declared, "Ronald Reagan! Honey, *he* is my man!" I was ready to talk, to charm, to lie.

Paynie and I cruised easily into the unguarded BB&K party. For some reason, Paynie wanted us to pretend that we didn't know each other, as if the other guests might believe that the only two guys in the room not wearing suits would be strangers to each other.

"The way you look," he said, "you're going to blow my cover."

"The way *I* look? What about you?"

Paynie was wearing a raggy golf shirt that Arnold Palmer wouldn't have used to Turtle Wax his Bentley.

"I'm going to say I'm a drug-rehabilitation counselor," he whispered.

I could see that, so I walked away. Perhaps it was his charming English accent, but I noticed Paynie making friends right off. I went to grab a cocktail, and then it hit me—an alter ego to complement his that I could pull off flawlessly.

To Paynie's chagrin, I pulled a chair up next to him at the table. Half a dozen suburban drug warriors looked up at me. I introduced myself.

"My name is Chris. I'm a recovering drug addict."

The conversation in progress, oddly, was about how the Drug War has been a complete failure, how drugs are stronger, cheaper and easier to obtain than ever. Yet they fought on, like Byzantines trying to reclaim the Holy Land, eyes blind to their odds. The legalization of pot was setting a bad example for children; medical marijuana was a farce. I found their company unpleasant—not so much for their views on cannabis, but because they were such a banal bunch. I had penetrated the garrison of the Anti-Pot Illuminati and found a party so boring it would

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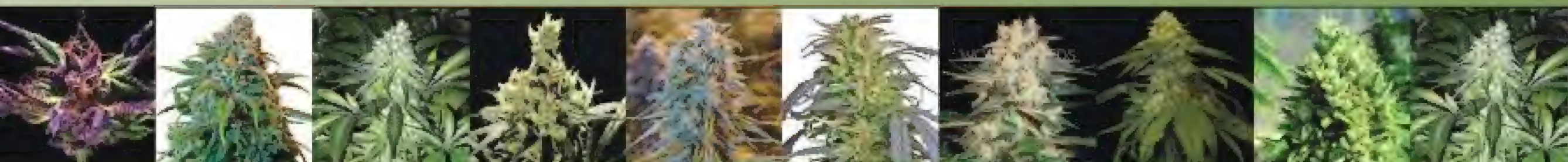
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make bingo night at the Kiwanis lodge look like a Kiss concert.

A guard came over and asked to see our passes. I had anticipated this, so I produced the printout confirming the reservation I had made for the conference (the one that was later rescinded). Then a man grabbed the paper from my hand.

That man was Paul Chabot.

"Chris Simunek!" He knew my name. "We cancelled your ticket. You got the email."

Paynie grew enraged, arguing with Paul and the guard until Chabot threatened to call the sheriff's department and have us kicked out of the hotel. I didn't want to spend the night sleeping in my rented Kia, so I pulled Paynie out to the lobby and then into the hotel bar.

"We'll pick them off here," I told him.

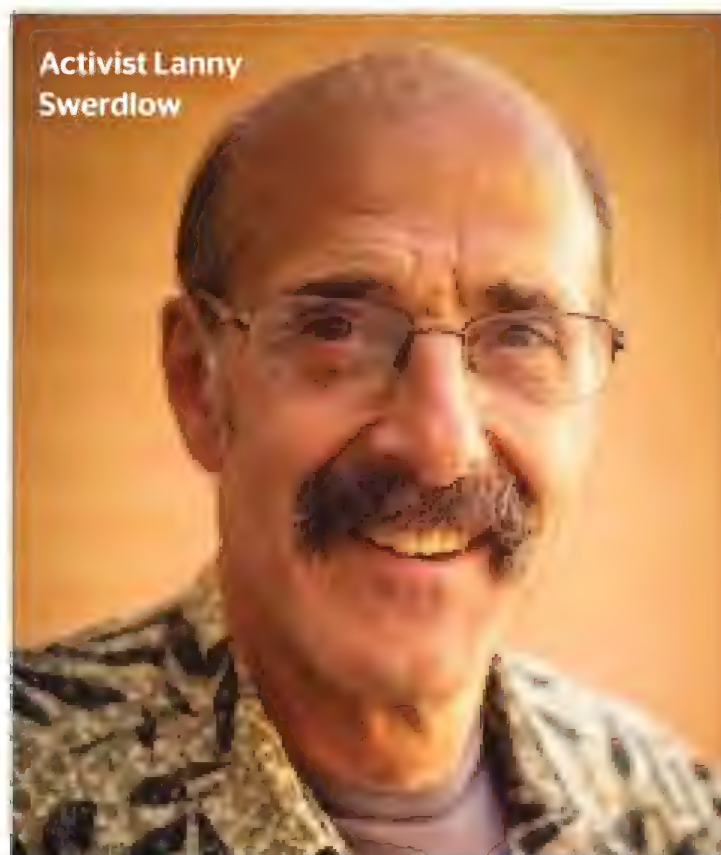
The bar looked like a dentist's waiting room, cheap and prefab like everything else in Rancho Cucamonga. Paynie ordered food and some green-melon-ish cocktail; I got a beer. Neither of us had any weed. After Paynie found a bobby pin in his Caesar salad, drinks were on the house. By our third round, a man approached us.

That man, again, was Paul Chabot. He had come to iron things out.

Looking younger than his 39 years, Chabot was disarmingly friendly for a member of the Drug War's Sith Order. Through our conversation that night and a subsequent interview, I got his side of the story. His beef with weed extended from his own personal experiences. He'd begun smoking pot at 12, started skipping school and wound up doing a month in rehab. He told me he used to steal copies of *High Times* from his dealers' houses. I asked why he had cancelled our tickets, and Chabot said that he didn't want the "radical" element of the pot movement disrupting the proceedings. Lanny Swerdlow's name was mentioned. We talked for a while, an amicable debate. He kept telling me he didn't want kids to smoke pot, and I kept countering that the pot movement didn't want that either. He had a particular detestation for the folks at LEAP, who, he believed, wanted to legalize all drugs. That was an oversimplification, I argued. No one wanted to see coke and heroin sold at the 7-Eleven; we wanted to see hard-drug abuse treated as a medical rather than a criminal issue, and we also believed that something had to be done to reduce the profit margins of the drug cartels.

"Clearly, we're not going to change

It seemed to me that the three of them were headed with sirens blazing toward an ironic spit roast—one where two pigs got to skewer a human.



each other's minds," Chabot said before shaking our hands and heading back to the business of making life difficult for your friendly neighborhood pot smoker.

In an interview conducted via email a few weeks later, Chabot had one thing he wanted to get across. "My words will have little effect on 99 percent of your readers. However, I hope to reach kids who, like me, may find this magazine laying around at a friend's house and learn from my story. I understood how cool it appears to use drugs, but find a good mentor, a teacher, a pastor, a priest, and open your heart to God—ask him for guidance and support in your life. You are never truly alone. He believes in you—and so do I."

A Separate Peace

Paynie split back to Los Angeles; I stayed at the bar. By nightfall, I found myself talking to a young lady from Northern California who hoped to open a dispensary and had thought that attending the Inter-Galactic Anti-Pot Orgy would give her an idea of where to start. Turned out she was wrong. She was friendly, buying me beers even after I told her about my bobby-pin account. She invited me outside to smoke a cigarette. She seemed a bit adrift.

In the parking lot, we talked. She kept trying to get me to guess her ethnicity. She was short and heavy, with big eyes and long lashes. Greek? Persian? Mexican? I never did find out.

"Are you happy, Chris?" she kept asking me.

"I got a cool wife, a job that doesn't suck too much. I'm happy."

"But are you *really* happy?"

I shrugged. "Are you?"

"Yes, I am *very* happy," she effused. "I have my husband, my beautiful kids ... and then I have my sexuality."

"Um ... hunh?"

"My *sexuality*," she repeated, her big eyes adding context to the words. "I like to have fun."

I stared out at the boulevard and its eight lanes of cars, the only movement in an otherwise placid night. Rancho Cucamonga is not a place where people desire to be; it's a place where people wash up at. A brackish oasis. To plant a tombstone here is to lose.

"Do you like to have fun, Chris?"

In the uncomfortable silence that followed, I made two wishes. First, I wished that all the people who lived or worked in this desert way-station would move on to wherever it is they truly wished to be. And second, once they had all relocated to the city or town of their dreams, I wished that a wildfire would sweep through and burn Rancho Cucamonga to the ground.

We returned to the bar, where the big-eyed lady with dreams of opening a pot dispensary made some new friends—two off-duty cops from Arizona in town for the convention. She introduced me as the editor of *High Times*, and the two shot me a look that said, "Back away from the female, Cheech." I actually laughed. One round later, she started caressing one of the officers' legs, and it seemed to me that the three of them were headed with sirens blazing toward an ironic spit roast—one where two pigs got to skewer a human.

It was a beautiful thing to watch, these opposing sides of the Drug War preparing to ink a peace treaty with their own bodily fluids. There was a lesson to be learned here.

Maybe an epic, violent confrontation between the pro- and anti-pot factions was not what was needed to end our ideological differences. Perhaps closure would come instead from a drunken, disgusting one-night stand between all of the opposing parties. LEAP and DARE. BB&K and NORML. Paul and Lanny. Maybe then, on the walk of shame home, both sides would promise before God never to frequent any place where they might run into each other again. ✨

(Thanks to Steve Hager for inspiring the title of this article.)



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BY JONAH RASKIN
PHOTOS BY LOCHFOOT

JORGE CERVANTES

THE HIGH TIMES INTERVIEW

WHAT JOHNNY APPLESEED DID FOR APPLES, JORGE CERVANTES HAS DONE FOR CANNABIS. OVER THE PAST 30 YEARS, NO OTHER PERSON HAS CONTRIBUTED MORE TO SPREADING INFORMATION ABOUT THE CULTIVATION OF A PLANT THAT HUMANS HAVE GROWN FOR THOUSANDS OF YEARS. NOT SURPRISINGLY, *HIGH TIMES* HONORED HIM WITH ITS LIFETIME ACHIEVEMENT AWARD IN AMSTERDAM IN 2013.

JORGE CERVANTES, BORN SIX DECADES AGO AS GEORGE VAN PATTEN, SAVES EVERY FACT ABOUT CULTIVATION—INDOORS AND OUTDOORS—THAT COMES HIS WAY. WHAT'S MORE, HE'S PACKING ALL OF THE WISDOM AND LORE HE'S GATHERED INTO A NEW, PROFUSELY ILLUSTRATED 512-PAGE BOOK, *THE CANNABIS ENCYCLOPEDIA: MEDICINE, HORTICULTURE, CONCENTRATES AND COOKING*, WHICH IS SURE TO SURPASS HIS PREVIOUS MASTER-*WORK, MARIJUANA HORTICULTURE: THE INDOOR/OUTDOOR MEDICAL GROWER'S BIBLE.*

CERVANTES SMOKED HIS FIRST JOINT IN 1968, BACK WHEN A POUND OF MEXICAN—WITH SEEDS AND STEMS—SOLD FOR \$100. HE HASN'T STOPPED SMOKING SINCE THEN, ALTHOUGH HE ALSO ENJOYS CONCENTRATES AND HAS EATEN HIS SHARE OF POT BROWNIES.

THIS MORNING, BRIGHT AND EARLY, CERVANTES IS ALREADY ONLINE AT HIS HOME NEAR THE TOWN OF SONOMA, CA, WHERE HE LIVES FOR HALF THE YEAR WITH HIS WIFE ESTELLA, WHO EDITS HIS BOOKS; A CHIHUAHUA NAMED MIA (WHO'S THE SIZE OF A LARGE BUD); AND THE COMPUTERS THAT STORE HIS LIFE'S WORK. HE HASN'T GROWN A SINGLE PLANT THIS YEAR—HE STILL HAS POUNDS FROM LAST SEASON. WHEN HE ISN'T IN SONOMA, HE SPENDS HIS TIME IN BARCELONA, SPAIN.

IN ADDITION TO HIS BOOKS, CERVANTES HAS MADE NEARLY 80 VIDEOS ABOUT CANNABIS. HE'S NOT JUST AN AUTHOR; HE'S ALSO A PHOTOGRAPHER, PUBLISHER AND PUBLICIST, A ONE-MAN COTTAGE INDUSTRY WITH GLOBAL REACH. HIS FACE IS KNOWN WORLDWIDE. (IN FACT, HE'S PUTTING IT ON THE COVER OF HIS NEW BOOK.)

JORGE (OR IS IT GEORGE?) MAKES TWO CUPS OF ESPRESSO, ONE FOR HIMSELF AND ONE FOR ME, ADDS BAILEYS AND STIRS, AND SITS DOWN AT THE KITCHEN TABLE. MIA JUMPS INTO HIS LAP AND SITS MESMERIZED DURING OUR MID-MORNING CONVERSATION.

How does it feel to have the *High Times* Lifetime Achievement Award?

It's a huge honor. Lots of others are no less deserving. I didn't expect it—I guess it means I'm old. They don't give an award like this when you're young.

Do your neighbors here in Sonoma know who you are?

I have the reputation as the neighborhood dooper. They've seen me on YouTube. They thought I was odd, and then a gay couple moved in, and now my wife and I don't stand out as much as we did.

There are a lot of different stories about where you're from.

Kids make up stuff about me on Wikipedia. I don't care. In fact, I'm from Ontario, Oregon. I'm 60 years old. I was always the gardener in my family—as a kid, I raised radishes, tomatoes and corn. I loved growing vegetables.

Do you go back to Ontario?

I went to my 40th high-school reunion. I took some pot with me and opened the bag in the hotel. You could smell it from the lobby to the fourth floor ... the whole place stank!

You smoked your first joint in 1968 and published your first book in 1983. What was going on between those years?

I went to school in the

States, Spain and Mexico. I had a landscape gardening business, I grew cannabis, and I got married in 1981. I was busy.

You're out there in the public eye, but you're also mysterious.

I've had to be to survive. I usually don't tell people my actual birthday, for example, and I've never really said much about those two years from 1990 to 1992 when I went to South America and Australia and was largely invisible.

What were you doing there?

I can't tell you everything, but I can tell you that I sampled marijuana wherever I went. I spent most of my time in Chile and in the Amazon and then in Brazil smoking *maconha*, as they call marijuana there. I never found any dope that was special. I learned that in the US and in Europe, we were ahead of them in terms of quality.

You've lived in Amsterdam, too, haven't you?

I had a lot of Dutch friends, like Mila Jensen, who was big on hash, and I knew a lot of Americans, too. In the mid-1990s, a dollar went a long way. I rode my bicycle everywhere to visit growrooms, though it took a long time for people to trust me enough to let me inside. It was in Amsterdam in the 1990s that

Jorge Cervantes,
author of what
many consider to
be the "Bible" for
indoor growing.



I realized a book about cannabis has to be in full color.

The tools of the trade

Why did you decide to write a new book?

It's amazing how much new information is out there. The technological changes are amazing. Now you can measure the cannabinoids in your own plants, as well as test for mildew and fungus. You can also develop different varieties much faster.

Where does your information about cannabis come from?

A lot of it comes from the Internet. For years, information about cannabis was withheld from the public. It was a secretive industry—growers themselves didn't share. Now you can find everything you want on your computer.

I know there are secrets about cultivation. Are there also secrets to writing?

You have to keep readers hooked. I like to have a balance between words and images. I learned that by writing for magazines.

In your books, you emphasize cleanliness, safety and orderliness. What's that about?

Cleanliness is essential. Your tools have to be clean, and your garden has to be neat and tidy. If it's not clean, you have a much harder time troubleshooting—dealing with insects or fungus, for example.

You've also urged precaution and even secrecy. Isn't that a real challenge?

I think of it as a double-edged sword. I've been paranoid a lot in my life, and I've kept a lot of things confidential. Also, a lot of friends have gone to jail, or had their gardens invaded, their crops ripped off and/or confiscated. There are good reasons to keep secrets. On the other hand, it's really helpful to share information—and also seeds and clones. It's a tough line to walk.

Do you think that experience helps? The more you grow, the better you are walking that fine line?

Experienced growers learn who to trust and who not to trust, but you still make mistakes. There's no way to be 100 percent right about people.

Are there common horticultural mistakes that growers make when they begin?

They try to do too much. They overwater or overfertilize. Those are the two most common mistakes. Or they get advice from the wrong people. Sometimes the quality of the water is poor or the plants don't get air circulating.

What about veteran growers?

They get cocky. They think their dope is the best. They put their buds on the table and say, "My bud's bigger than your bud."

What about harvesting? What's your method?

I always harvest in stages. I don't take the whole plant all at once; I take the outer buds first and then the inner buds little by little. I get 40 percent more that way than if I harvest everything together.

I remember harvest parties where growers brought weed and coke so they could smoke and snort and go on smoking for hours.

There was a time when *everyone* had coke. You were popular if you had it. I sold it, too.

It's taken you a long time to write your new book. Why is that?

It's hard to get it right. It's also a big responsibility. People will be counting on me to have all the latest accurate information. I have to rely on others for some stuff, like carbon filters. There's a Swiss guy, Mark Montandon, who's the world's expert on carbon filters. I can trust him. Technological developments—such as plasma lights—are happening very quickly. They're as good as sunlight.

Where are the biggest technological developments happening?

In the USA. There's more money here for research and development, and the velocity of change is way faster, too.

I remember when everybody in Northern California was

growing *sinsemilla* and trying to figure out the same cultivation problems. That made for real advances.

For a time, *sinsemilla* was the buzzword; now you hear "CBD" everywhere. Five years ago, there were almost no CBD-rich plants. Now they're all over the place.

What about innovations in botany?

There's more plant innovation in Europe than the States. There's a more highly developed seed market there, and seeds fly back and forth across borders all the time. They have seeds that are guaranteed to produce female plants. You can also get plants that will flower after three weeks.

You have two names: George Van Patten and Jorge Cervantes. Are they two different people? You were born George Van Patten—Jorge came along later on.

They are definitely two different people. When I'm George, I'm Jorge's manager. George speaks English. Jorge is bilingual and speaks English and Spanish.

When did you first use the name Jorge Cervantes?

In 1983, when I published my first book. My wife's last name is Cervantes, and one of my favorite authors is Miguel Cervantes, the author of *Don Quixote*. I was honoring her family and the father of the novel. I'm really happy I chose that name.

How does George feel about Jorge?

It took years to develop Jorge Cervantes's personality. He's not a perfect guy. He makes mistakes—sometimes he's a bit of a fool. But people identify with him. They see that if he makes mistakes, it's okay if they make mistakes, too. No one is going to be perfect at cultivation. Jorge isn't ... not even after all these years.



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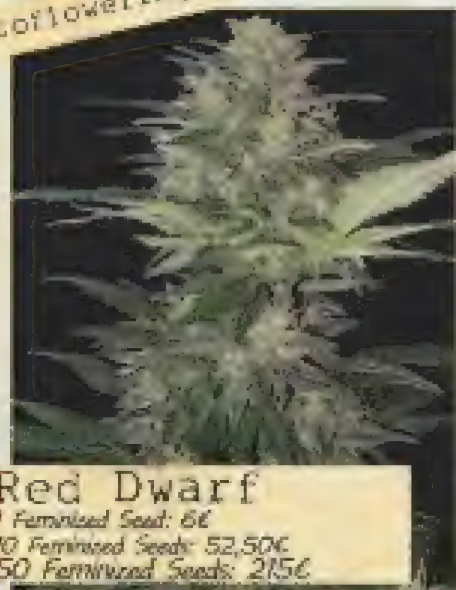
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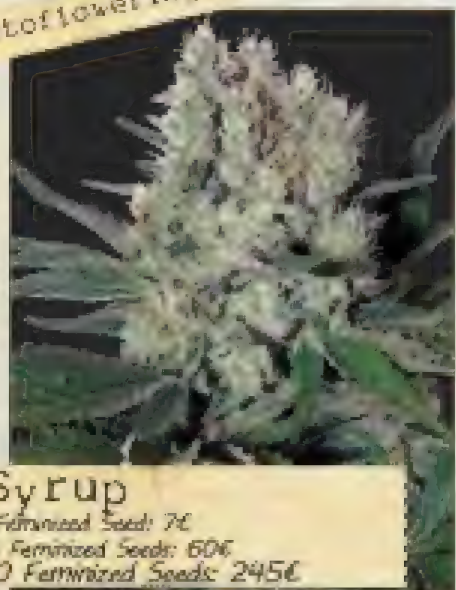
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Deimos

1 Feminized Seed: 80¢
10 Feminized Seeds: 700¢
50 Feminized Seeds: 2900¢

Autoflowering



Syrup

1 Feminized Seed: 70¢
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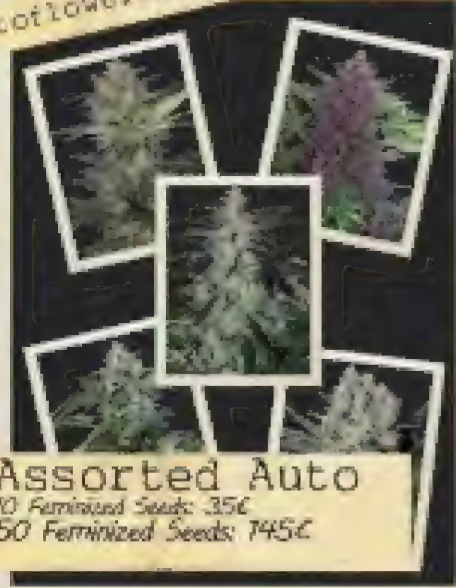
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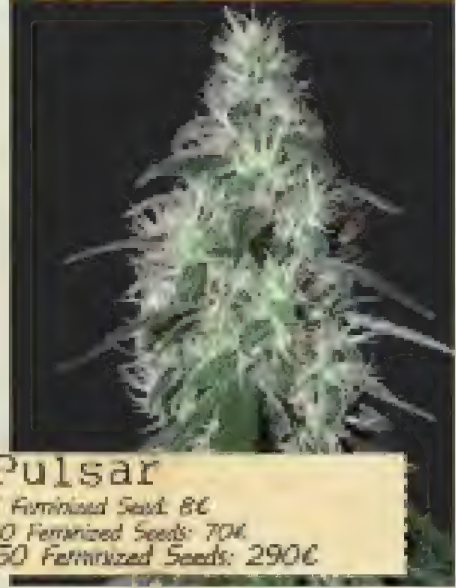
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People are naturally anxious about growing, so there's no need to make them more anxious, right?

Exactly. It helps to be relaxed and comfortable and take it all in stride.

What I notice about you perhaps more than anything else is your sense of humor.

If you can't laugh about cannabis, you shouldn't be in the business.

Is your life in Spain different than here in California?

I am much more social there. I live right in the center of Barcelona. The food is great, the wine is excellent, and the cannabis is first-class. There's also tasty Moroccan hash.

Is there a lot of cannabis in Barcelona?

More than you could want. The last time I landed at the Barcelona airport from the States, I ran into someone I knew who said, "Do you have any pot?" I didn't because I'd been on the plane. He handed me two huge joints. I met a friend picking me up and we immediately went into the parking lot and puffed out.

I've heard Spain is the new Holland.

There's a ton of tasting clubs. You can buy by the gram and you can smoke on the premises. I go to the Resin Club. A friend owns it; it's a very comfortable place to hang out. In Spain, the only rule in the cannabis clubs is that to be a member you can't be a cop.

What else about cops in Spain?

Try not to smoke right in their faces. That's the rule. Otherwise, they don't care. American cops watch too much TV—they have inflated images of



"If you can't laugh about cannabis, you shouldn't be in the business."

who they are. Hell, they have a powerful lobby.

Do people go to jail for cultivation in Spain?

Rarely. I have a buddy who was arrested with 190 kilos; he said it was all for personal use. He didn't do jail time, and while they confiscated most of it, they didn't confiscate *all* of it. He moved to the next valley and started to grow there and had no more problems with the cops.

I hear people say the federal prohibition against pot will end soon. What do you think?

There's too much money and power at stake for it to end soon. The war against weed pays for salaries, prisons, and social workers who take your kids away if you're found guilty of cultivation. The prison-industrial

complex isn't going to grind to a halt. We go on growing, harvesting and smoking, and the police go on making arrests and sending people to jail. They don't want the prohibition to end. They'd lose their jobs.

You've been consuming cannabis for 45 years. What have you noticed in that time?

I've performed a long series of experiments on myself. The very first thing I learned was that they—the government, teachers and scientists—lied to me, lied to *all* of us, about cannabis. I smoked and got high, and none of the awful things they told me about it were true. That made me skeptical about all official stories—not just about cannabis.

What about your mind and body after 45 years?

I'm in good physical condition. And my mind is as sharp as ever. I couldn't be writing books and making videos if there had been harmful affects from smoking cannabis. I smoke less now than I used to and use tinctures and edibles more often. If I have a problem, it's that I think too much—I can suffer from insomnia. Cannabis helps me relax and get a good night's sleep.

You had a column in *HT* for about a decade. How was that?

It was a great deal for both of us. They needed me because I was an expert, and I needed them to get my stuff out there. *HT* was the only cannabis publication at that time. These days, I love the Cannabis Cup events—I wouldn't miss them for the world. 🌿

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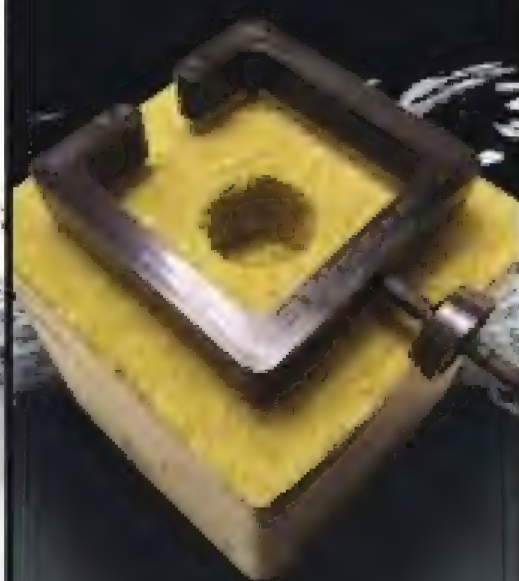
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SUBJECT: **Grow Up**

FROM: **Andrew P.**

Do plants grow upward regardless of light placement? For example, if the lighting were placed on the sides of the plants, would they only grow outward, or would they grow upward as well? Also, is gravity a determining factor for plant growth, or is it purely the light?

Dear Andrew,

Plants grow in the direction of their light source. This is why vertical growing units can increase yields in the same footprint. A vertical bulb in the center of a grow space will have plants placed around it growing in towards the light. By stacking several plant levels, the same area can be used to grow more plants. Gravity doesn't play a role in the direction plants will grow in.

Plants grow in the direction of their light source.

Danko Tip: To avoid root rot, never allow plants to sit in standing water.



Thai sticks, once popular, are now a rarity.

SUBJECT: **Rare Weed**

FROM: **Gee Kay**

🌿 Back in the late '70s, most of the weed in Hawaii was actually leaf from Mexico. There was the occasional shipment of other, better product, but for the most part we smoked garbage. Until, that is, the arrival of a product dubbed "Elephant." This was a sticky roll of dark brown bud. The first two waves of it that we got were wrapped in gauze/cloth. There was so much resin in the first batch that some of the sticks actually had small, resinous crystals forming on the cloth wrap.

The smoke was a deceptively smooth pull that could produce coughing jags in the unaware. And the high was so

powerful that some of my friends took a sample to the free drug clinic in Waikiki; they were worried that the weed might have been juiced with an opiate. The clinician doing the testing came back and said, "No opiates. This is just really good weed. Where'd you guys get this?"

After a year or so, Elephant disappeared from the scene. Some said it had to do with the Brotherhood of Eternal Love being busted. There was new product that attempted to fill the void, and though it was good, Elephant was on a pedestal all by itself. Then the waves of various other products from Southeast Asia commenced, along with the introduction of super bud from the Big Island (Puna Butter and Kona Gold were two that made it to Oahu). But nobody could

get, or knew where to get, the original Elephant weed that I still remember more than 40 years later.

My questions are: Have either you or any of your contributors heard of this strain? Is it still available? Was/is Elephant weed an original landrace strain? Mahalo!

Dear Gee,

The bud you're describing sounds like Thai stick to me. Thai sticks were around at that time, and many have described the experience of smoking the real-deal ones as hallucinatory and highly energetic. In general, strains from Southeast Asia tend to exhibit more racy qualities and longer flowering times, though I've never heard of them being referred to as "Elephant" before.

From what I've heard secondhand, many of the growers and Thai stick producers in Thailand either quit or shifted over to growing the more profitable poppies used to produce opium and heroin. Occasionally, a coffeeshop in Amsterdam will have some Thai weed, and when it's authentic, it provides quite an electric buzz. The only downside to growing Highland Thai strains is that they tend to exhibit hermaphroditic tendencies late in life.

SUBJECT: **Straining for Strains**

FROM: **The Dude**

🌿 So I've read a lot of books on growing cannabis, and I feel I may be ready to start. I'm looking at the BC Northern Lights growbox called the Roommate. I plan to grow hydro in this setup—just four plants that I will vegetate for one and a half to two weeks for an intentionally small yield, as this is my first time. Could you suggest a strain that is decent and not too difficult to grow? Any tips on it will be much appreciated.

Dear Dude,

You're going to want to grow an *indica*-dominant plant in the growbox. My suggestions for strains would be MK-Ultra from T.H.Seeds, Kosher Kush from DNA Genetics or the Purps from BC Bud Depot. All of them will stay fairly short and stocky, while still producing connoisseur-quality pot in a small space. But there are many other *indica*-dominant strains out there that are worth looking into as well.

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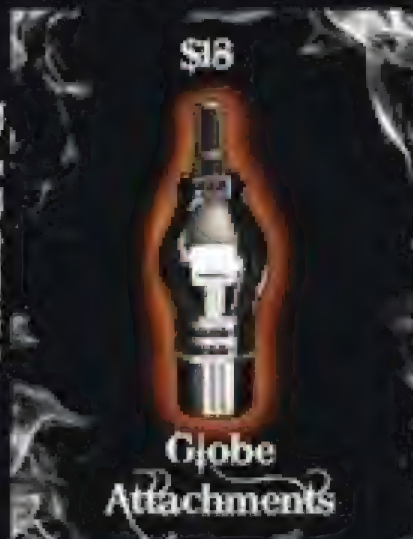
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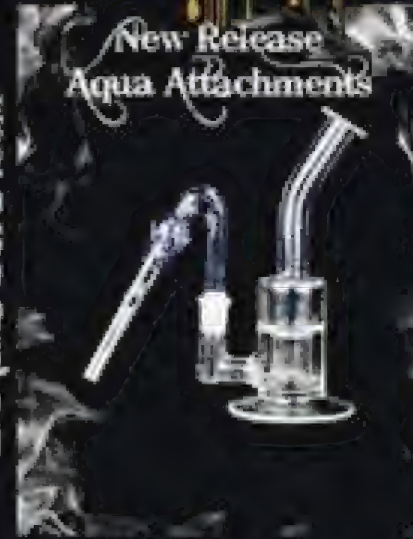
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Danko Tip: Transplant rooted clones to larger containers as soon as you see roots emerging.

SUBJECT: **Plant Transplant**

FROM: **Greenhorn**

Let's say I have a handful of strong females about a month and a half old. They're in shallow 2-gallon buckets, and the roots are covering the bottom of the pots already. Clearly, they need to be transplanted. How long would it take them to reach the bottom of a 5-gallon container? And what's the most efficient way of keeping a 5-gallon bucket moist at the bottom without drowning my girls?

Dear Greenhorn,
Sounds like you definitely need to move your plants into larger containers. Water them thoroughly first, then gently remove them from their current ones and place them into the larger 5-gallon containers that have been filled beforehand with soil mix. Fill in the empty spaces around the soil ball with mix until it's level and then water the plant in again. It will be several weeks before the roots reach the bottom, and much longer than that before the plant becomes root-bound. It should give you plenty of time to finish your harvest without having to transplant a third time.

You can keep your mix moist by bottom-feeding the plants. This entails watering them from below and allowing the roots to take up what they need. Just make sure they don't sit in standing water for too long (no more than an hour). This also has the added benefit of keeping the top few inches of your soil from always being oversaturated, which creates a haven for pests and molds, and it helps to conserve water as well. Several companies market buckets that have built-in reservoirs for the purpose of watering from below, and most of them work great.

SUBJECT: **Outside In**

FROM: **Donna J.**

I know it's a fact that you can grow plants indoors and later move them outdoors to finish their season. My question is this: Can you grow plants outdoors and later move them indoors under 800 watts of high-pressure sodium (HPS) light to finish their cycle until harvest? Mine are one month into the flowering stage, with six

Transplanting outdoor plants inside is tricky, but possible.



to eight weeks left to flower. The problem is, I suddenly have issues with the weather, as well as unexpected work being done outside my house.

Dear Donna,
It is possible to move plants indoors, but they'll likely suffer from a transition period during which they'll spend most of their energy adjusting to their new environs. This may take up to a week or two and should be added onto your flowering time. The closer you can mimic the light cycle they were experiencing outdoors, the better (i.e., the same period of light during the day and darkness at night). Your plants will eventually finish up their flowering indoors without much of a problem.

SUBJECT: **Seeds for Mother Plants**

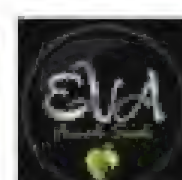
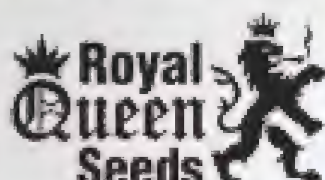
FROM: **Joe**

I need your expert input on mother plants from which to obtain clones. Is it better to use feminized seeds, or to use regular seeds and then sex them out? Can you make a good mother plant from feminized seeds and then use clones from that to grow?

Dear Joe,
I don't recommend growing out mother plants from feminized seeds. The advantage of feminized seeds is being able to know that your plants will all be females, which means you can grow an easy crop (i.e., no culling the males). But if you're growing from seeds in order to pick a mother plant from which to take clones and grow many crops, my belief is that you're much more likely to find a "keeper" phenotype when you've taken advantage of the hybrid vigor you get



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from F1 hybrids; thus, regular seeds are better.

Be sure to take clones from the seedlings in order to determine which ones are females or males. Flowering your mother plants and then switching them back to the vegetative stage will stress them out, and you don't want stressed-out mother plants. Instead, use the corresponding clones to decide which are your "keeper" females and then discard all the males and unwanted females (or, God forbid, hermaphrodites). This way, you'll have healthy clones from non-stressed, properly chosen mother plants for years' worth of crops.

SUBJECT: **Cannabis Careers**

FROM: **Drew**

🌱 I'm an Oklahoma college kid trying to discern his life path. Lately, I've been exploring my employment opportunities and finding little luck in any industry due to my disabilities. I was born with albinism, which also affects the eyes and degrades visual acuity. Our world is ever more revolving around technology, and my eyes just can't keep up. This may seem like a minor hindrance, but it affects every aspect of my role as a prospective employee. From reading labels to working a register to even waiting tables, my visual impairment holds me to certain physical limitations, and employers know this as well. Of course, this makes choosing a career path that much more difficult. But I feel I may have found some sort of direction.

Since I was 14, I've used cannabis to relieve my constant eye problems as well as a means of social communion. Recently, I've been trying my hand at cultivation, as the prices for this plant are too damn high. I've always loved nature and how it can reciprocate the feeling. Plants do not care if I have to get a little closer to make sure they're doing okay. I spend hours carefully manicuring my garden. The labor, though monotonous at times, is the most peaceful portion of my day.

Due to the questionable illegality of this plant, I have no knowledge of what the job prospects are like in the cannabis world. Are there possibilities of employment in other states? I know that with legalization, an actual market is finally developing, but I don't know how or where. Probably anyone who likes cannabis would love to get rich by growing it, but I honestly do not care about the money. Having a career in cultivation or any other sector would give me the opportunity to actually feel productive in my life. I'd be able to enjoy the fruits of my labor and feel the sense of accomplishment that has forever been eluding me.

Dear Drew,

Sorry to hear about your condition and the trouble it has caused you with employment and beyond. The good news is that, as the laws are changing in favor of legalized marijuana, many new careers have emerged in the industry. Places like Colorado and Washington, as well as almost 20 medical marijuana states, are providing plenty of pot-related jobs.

If I were you, I'd pack up and move to Denver, Seattle, or one of several other cities in favorable states and try to get a gig as a trimmer for one of the larger growing outfits. You'll have the opportunity to see how the pot business operates from the inside, and there's always plenty of room for advancement if you're willing to work hard and maintain your responsibilities on a regular basis. 🌿



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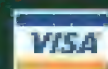
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The Search for Truth

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For any study you mention, there always seems to be another study that says the opposite. What gives?

Thomas T. Doubter

Dear Doubting Thomas, Keep up the doubting! Every time we study a few people in the laboratory or thousands in a survey, we play a game of probability. The truth *is* out there—and if we look at a large enough sample, we get a good estimate of what's going on, especially when studying issues like marijuana use and its effects. We usually have to try several times and use different sets of results before we can draw any big conclusions; a single experiment will rarely (if ever) lead to a final conclusion. But if several different tests produce the same result, then we're on to something.

How do you respond to the argument that medical marijuana laws cause more marijuana use?

Occam

Hello Occam, Marijuana use *is* more common in states with medical marijuana laws, but we've got a chicken-and-egg problem here: Those laws were passed precisely because more marijuana users reside in those states—and that was true even before the laws were passed. The real concern is the number of people with so-called cannabis "problems," which is considerably more important than the number of users. As researchers gather data, we'll get a better feel as to whether there's been an increase in cannabis-related



The real concern is the number of people with so-called cannabis "problems," which is considerably more important than the number of users.

health or social problem in these states. I'm betting, however, that we'll see no difference.

Do the brain's cannabinoid receptors create the feeling I get from green tea?

Robert Plant

Hi Robert, Probably not. Green tea does have some affinity for the CB1 receptor, which might contribute to the tea's legendary antioxidant and anti-inflammatory effects. But green tea doesn't stimulate the CB1 receptor in the same way that THC does. The odds are that any effect you get from green tea is coming from good old-fashioned caffeine. 🌿

Dr. Mitch Earleywine, PhD, is an associate professor of psychology at SUNY Albany and the author of Understanding Marijuana and The Parents' Guide to Marijuana.



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Dawn of the Medi-Dab

A new age of cannabis
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IN 2008, I ran into Rudy Reyes, a tireless marijuana activist from San Diego, CA. Rudy was nearly killed during the 2003 wildfires in the state, in which he suffered severe burns while rescuing people. Today, he uses cannabis liberally to alleviate the constant pain and discomfort he experiences. Rudy told me that many burn survivors use pot similarly.

That summer, Rudy was invited to the World Burn Congress in New York City, an annual forum that encourages and facilitates the sharing of stories, provides support and increases the knowledge of burn recovery. At the conference, Rudy introduced me to a number of people who had been dealt one of life's worst possible hands, and who now rely on cannabis to help them maintain their health and live more comfortably.

In my conversations with these people, virtually all of them said that the burn-recovery process is far more difficult and painful than the experience of being severely burned itself. Nerve endings have been destroyed, along with the sweat glands that regulate body temperature. Indescribable itching sensations are common. Multiple surgeries are often required, as well as tough physical therapy sessions to deal with damaged muscle issue.

Anyone who has experienced an agonizing accident or operation



How can burn patients get the rest they need without being doped up to the point of zombie-dom?

knows full well that pain can be an omnipresent oppression. Every patient craves relief; that's why the concept of "pain management" is such a refreshingly accurate term. But how can burn patients get the rest they need without being doped up to the point of zombie-dom? How can they receive proper nutrition when opioids cause a myriad of gastric issues? How can they maintain a positive state of mind in the midst of continuous suffering?

The fact is that virtually all burn survivors become addicted to opioids in their recovery process. Attending the conference was an

emergency-room nurse, who told me that it would make a huge difference in patients' treatment if cannabis could be administered instead of OxyContin and other heavy opioids.

Mainstream medicine is increasingly recognizing that the benefits of cannabis far outweigh its drawbacks, which are few and far between in any case. Now, with the phenomenal rise of concentrates and their ability to provide potent relief without further damaging a patient's health (unlike many prescription pharmaceuticals), perhaps the dawn of the "medi-dab revolution" is finally here. *Dan Skye*

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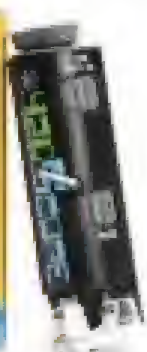


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Vaping With Geraldito

Demonstrating vapor pens live on Fox
News proves as surreal as it sounds.

Over the past few months, there's been a flurry of media attention surrounding vaporizer pens. As the coordinator of our vapor-pen buyer's guide last month, I was interviewed by several news outlets—including *The Nation*, *Miami New Times* and WNBC here in New York. But the most surprising and sensational opportunity came from none other than that mustachioed media icon himself, Geraldito Rivera.

As a kid in Brooklyn, I grew up with Geraldito. I recall watching with excitement his ill-fated excavation of Al Capone's vault, his interview with Charles Manson, his nose being broken by a Nazi skinhead on the set of his eponymous talk show, and his exaggerated exposés on Satanism—which, as a metalhead, I took particular issue with. But while Geraldito and I probably don't see eye-to-eye on many issues, there's one topic we do seem to agree on—marijuana. In fact, he famously smoked weed himself (under medical supervision) on one of his news specials in 1974. Now, at the age of 70, he's hosting *Geraldito At Large* on the ultra-conservative Fox News Channel—the last place on earth I ever expected to find myself on a Saturday night. Nevertheless, there I was, sitting across the desk from the man himself, about to demonstrate how to use a vapor pen on live television.

"Bobby, how does it work exactly?" he asked me.

"This is the standard e-cigarette style with a flavored nicotine glycerin solution, which you would puff ..." I explained, taking a quick drag. "But what you see with the adaptations being done for the cannabis community ... is different tanks for vegetative matter/flowers"

"You mean like puffing a daisy or something?" Geraldito interrupted in bewilderment.

Oops—bad choice of words. Being in the dab scene for so long, I sometimes forget that referring to pot as "flowers" can be confusing to marijuana "muggles" not versed in the new terminology.

"No, actual cannabis," I clarified.

"There are also pens designed specifically for cannabis concentrates."

"So what do you have in that one?" Geraldito asked warily. "It's not cannabis or anything illegal?"

"No, not at all," I assured him as I handed him the pen.

"Do you light it like a cigarette?"

"No, you just hold the button in"

It took Geraldito a second to find the button, eliciting a chuckle from someone in his crew—but once he did, he took a couple of big rips.

Geraldito had intro'd the segment by stating

that, in much the same way that porn had fueled the rise of the Internet, cannabis was behind the growing popularity of e-cigarettes. Now he wanted my take:

"What about my thesis about pot smokers using this ... is that what's driving this, in your opinion? Or is it that it's healthier, that you're not putting fire in your lungs?"

"I think it's both," I replied. "It's healthier, it's more convenient ... it's better, certainly, for medical marijuana patients, because it's easier to use, easier to control your dosage. And rather than smoking a joint or a bong hit or something of that nature, you can just do one little puff of a cannabis concentrate and your pain is relieved instantaneously."

Geraldito went on to ask about *High Times* ("the bible of pot users everywhere") and how it was doing—putting a picture of our January 2014 cover up on-screen and giving me a perfect opportunity to plug our 40th anniversary.

"Forty years ..." he mused. "Isn't it ironic that *Newsweek* has fallen by the wayside and *High Times* is thriving?"

After the show, Geraldito came backstage to thank his guests and pose with us for pictures; he even agreed to grant me an

interview. All in all, he and his team were incredibly gracious, and despite any ideological differences, I have to give the man credit: Like *High Times*, he's been out there making waves for the past 40 years. In fact, some might even call him ... infamous. ✨



Backstage with Geraldito

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Game Change

The Internet has ushered in a new era for effective marijuana-law reform.

By Allen St. Pierre is the executive director of NORML. Visit norml.org.

To demonstrate to college audiences how long I've been with NORML, I note that I've worked there both "pre- and post-Internet." I want to underscore how fortunate they are to have been raised in the Internet Age. Thanks to the Internet, there are no less than *seven* big Web-related reasons that cannabis prohibition is yielding to legalization in the US.

Webpages

For over 30 years, NORML spent an enormous amount of time, energy and money publishing newsletters, reports, and fundraising letters that had to be stamped and mailed. But once it launched its own webpage in 1993, NORML had a central repository for information, networking, lobbying, fundraising and community-building around the issue of marijuana-law reform—a true 24/7 operation. At that point, we realized that a new age of pro-pot advocacy was upon us, and that the paradigm for political and social change could finally swing reformers' way.

Access to Information

Formerly, access to information about marijuana was severely limited. However, once the Internet was established, citizens could privately research thousands of academic papers, print them out and create libraries of cannabis-related information that were easily shared with others. This ended the mainstream media's stranglehold on information about cannabis-law reform. A pre-Internet NORML chapter meeting might have

attracted only a dozen hard-core activists; these days, hundreds of people can participate through listservs, chat rooms, blogs and meet-ups. Geographic distance is no longer a factor in creating a movement.

Building Community and Networks

NORML became an all-digital communicator in the mid-1990s, notably with the advent of email and, later, listservs. Today, NORML uses Facebook and Twitter to quickly and affordably reach over half a million opt-in supporters online. After 40 years, the strength of NORML's brand and its high-profile public-advocacy work on behalf of cannabis consumers and patients has made our network the equivalent of all the other drug-policy reform organizations *combined*.

Lobbying

Before 2000, state and federal legislators received only a few hundred letters supporting cannabis-law reform every year. Now, millions of letters to elected policymakers are sent annually by NORML's members and supporters via the organization's webpage. Lawmakers on both the state and federal level have told NORML's lobbyists that our legislative outreach swamps the efforts of today's prohibitionists by five to one.

Marijuana's Popularity Online

In the pre-Internet age, media outlets used inexact measurements to gauge the popularity of programming and trends. Today,

we possess real-time data on many of the most granular details of American life. As a result—and not surprisingly—media experts have detected a strong desire for information about cannabis. The commercial necessity to meet this demand means increased coverage of the issue, which results in more "hits," translating into more revenue.

Digital Archives

NORML's first 25 years of existence created a considerable paper archive—one that is costly to maintain. Confident of its value to historians and political scientists, NORML recently donated this original archival material to the W.E.B. Du Bois Center at the University of Massachusetts Amherst. Soon, thousands of emails, letters, reports, photographs and videos will fit on a few hard drives. At that time, they'll be made publicly available and searchable.

Fundraising

NORML receives and answers over 2,000 emails a day. NORML has always maintained a full-time staff to answer phone calls and reply to letters. But thanks to the Internet, fundraising costs have dropped, as NORML's supporters no longer end up paying for paper, postage and delivery. Every dollar donated to NORML is now spent much more directly on reform-oriented projects and events. This has created a much greater degree of connectivity and effectiveness among NORML and its many supporters. ✱

FREEDOM FIGHTER

Hangin' with Hanger

A Pennsylvania politician campaigns on a new platform—honesty.

John Hanger wants to legalize marijuana in the Keystone State. The former secretary of Pennsylvania's Department of Environmental Protection, Hanger is running in the 2014 Democratic primary to win his party's nomination as governor. He announced his candidacy earlier this

year and, very soon after, laid out a clear three-step plan to reform Pennsylvania's marijuana laws.

If elected, Hanger plans to move immediately to decriminalize personal possession and allow for the medical use of marijuana. "These laws are denying sick people—including sick kids—the medicine that they need," Hanger says. "In many cases, it is the only



medicine that will treat them. Withholding medicine from sick people is cruel and barbaric, and these laws are doing just that."

But he also wants to go beyond decriminalization and medical use: His stated goal is the full legalization of recreational use by 2017—and it's an issue that Hanger is not shying away from. Since the beginning of his campaign, he has traveled the state bringing his message of

reform to marijuana advocates and the general public. Indeed, Hanger has already been prominently featured as a speaker at a number of NORML rallies and events.

"My candidacy is the equivalent of a marijuana referendum on the ballot," Hanger pledges. "By voting for me, you are voting for marijuana reform. Politicians will no longer be able to be on the wrong side of this issue."

The Pennsylvania Democratic primary is scheduled for May 2014.

By Erik Altieri, NORML communications coordinator

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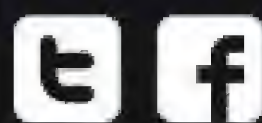
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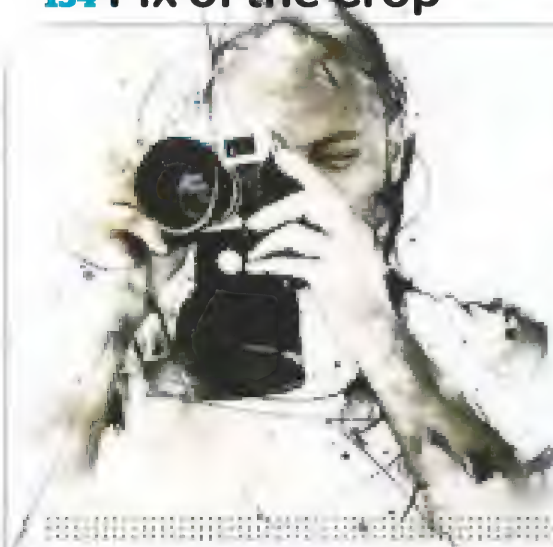
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FLOWER OF THE MONTH

Razzle Dazzle



This is the high-CBD strain Razzleberry. Luke Mann and Jay Lamb grew it. It turned this color literally overnight. *Jeoff Underwood*

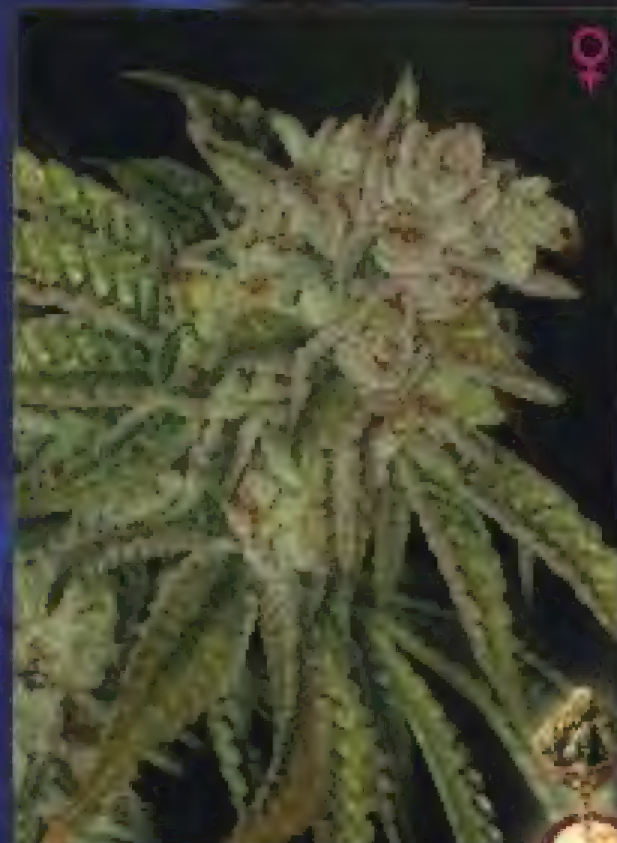




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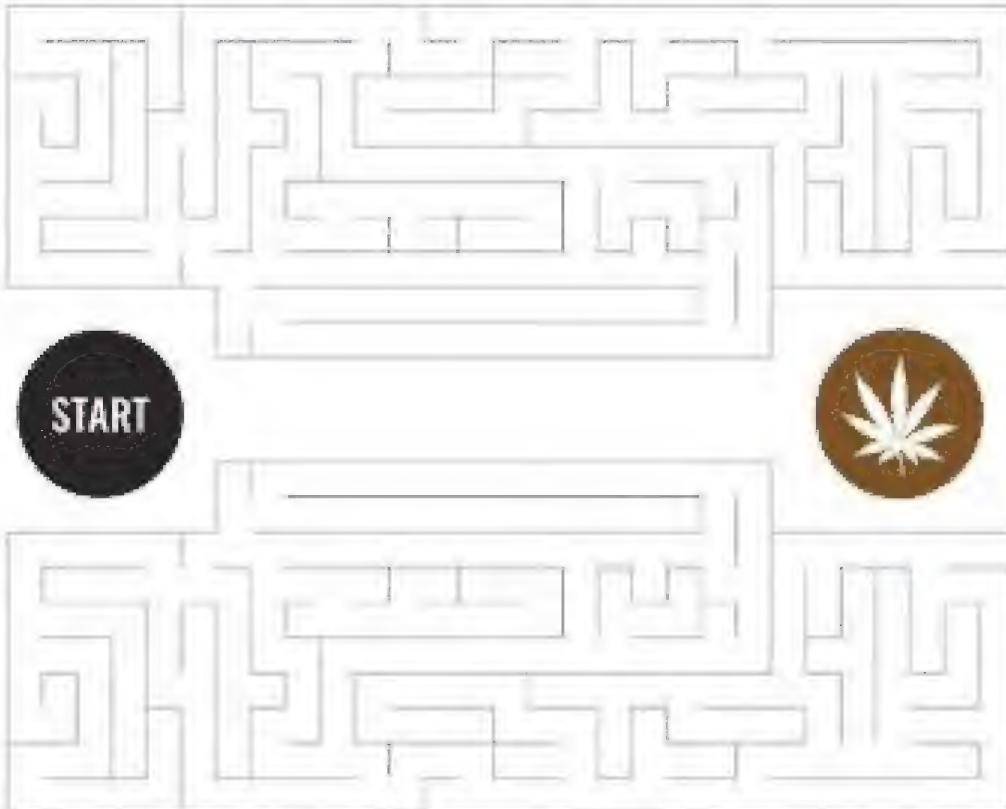
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COLA OF THE MONTH

California Beaming



Check out some Cali fire up close. I am @mr_sensimilla on Instagram. #Chiefitdawg Zack



CLOSE-UP OF THE MONTH

Fantasy Island



I got some amazing macro shots of some outdoor, grown on a little gulf island off the east coast of Vancouver Island, BC. Let me know what you think. It's my 73-year-old grandma's weed. Lotus Eater



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GROW OF THE MONTH**Dank Dynasty**

 Howdy from ZZ Pot Farm's 2013 crop, high in the hills overlooking San Francisco Bay. I used 32-gallon garbage cans with all-organic soil and fertilizer, sun-grown under 50 percent filtered shade cloth for maximum explosive growth. Thanks to Attitude Seed Bank for the best selection hands down. Stay high and put it in the air. *ZZ Pot*

**GROWER OF THE MONTH****The Stalking Dead**

 Things going great here! Check out the size of this plant top. Hope you enjoy, I know I did! *Krosher*

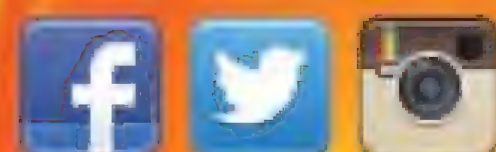
**NUG OF THE MONTH****Florida Grown**

 Hi, C.E. here with some of a beautiful South Florida 2000-watt organic multi-strain garden. We'd love to see these in one of your pics of the crop! This shot is Granddaddy Purp. *C.E. and my "buds" B.G. and Regz*

RSN8



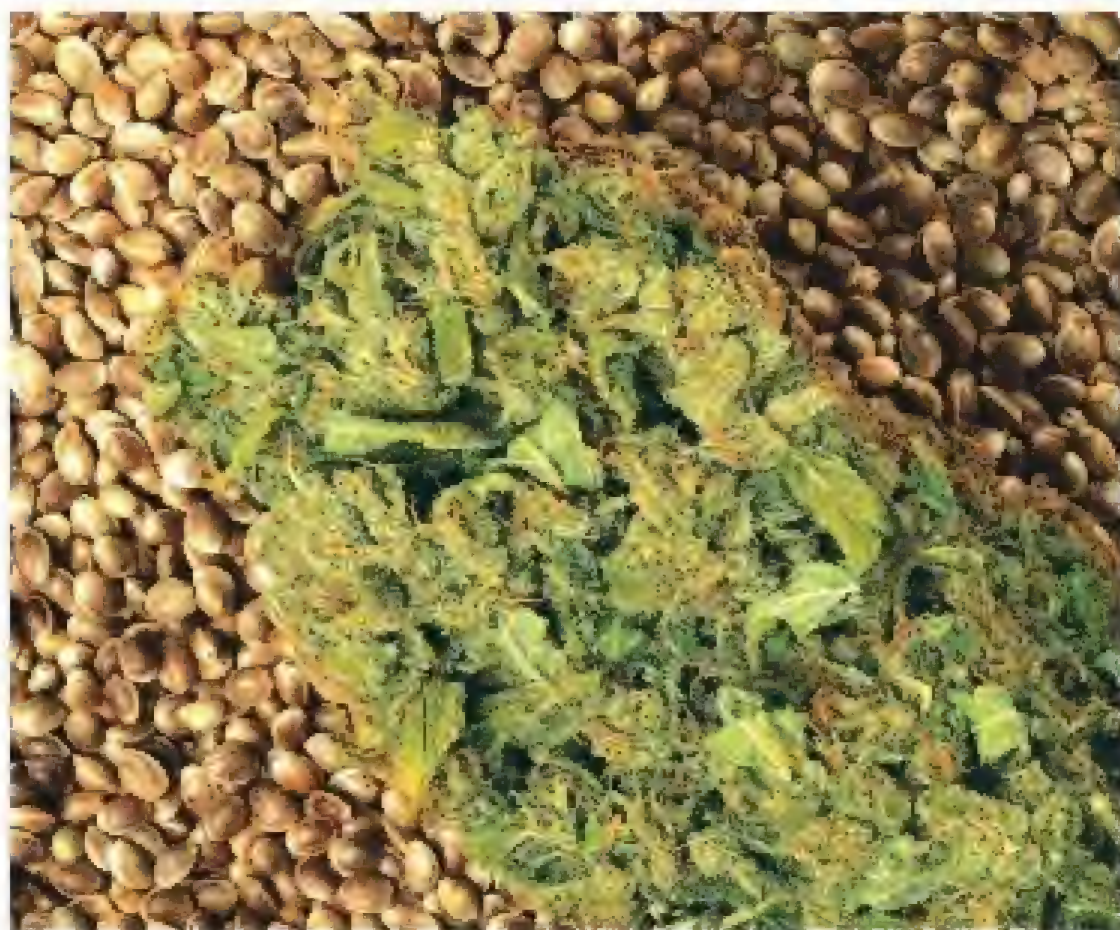
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HIGHTIMES



40 Greatest Seed Banks of All Time!

Senior cultivation editor Danny Danko announces 10 triumphant new entrants into the illustrious High Times Seed Bank Hall of Fame, established in 2007 to recognize outstanding achievements in the field of marijuana strain breeding.

MMA & MJ

Mixed martial arts, the sport often decried for its no-holds-barred violence, and its professional league, the Ultimate Fighting Championship, is filled with fighters who love pot. Learn all about pot's popularity and MMA.

Canada's New Medical Pot Program

This year, Health Canada decided to get out of the pot business and turn over the nation's medical program to government-sanctioned growers. Peace Naturals in Ontario offers an inside look at one of the new licensed cultivation outfits.

Girl Scout Cookies

This famous strain was created in California by the Cookie Family. And while phenotypes have won several Cannabis Cups, the true genetics have never been on the market. Meet the creators.

Small Spaces, Big Yields

Cultivation expert Read Spear details the construction of an inexpensive two-bucket DWC system and discusses concepts aimed at those already growing, but not getting the desired results.

MMA Fighter Matt Riddle

Champion mixed martial arts fighter Matt Riddle has never made a secret of his affinity for cannabis. As he prepares for his next big fight, Riddle talks about toking up and the rigors of his sport.

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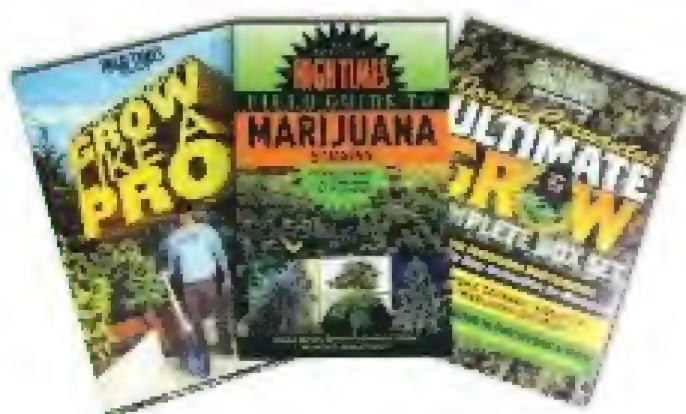
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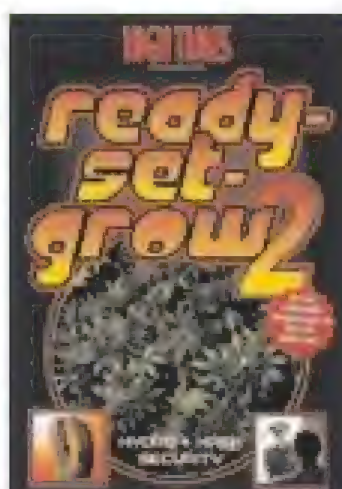
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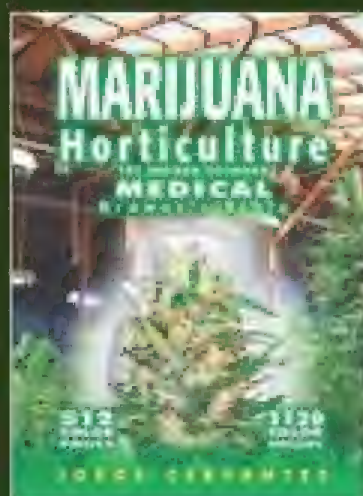


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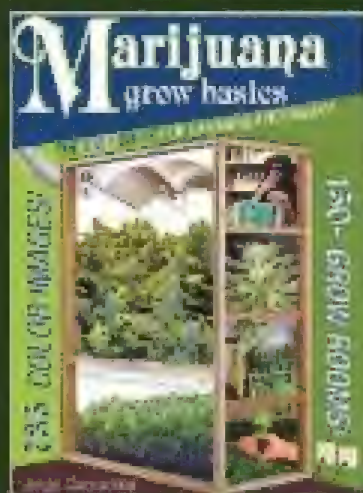
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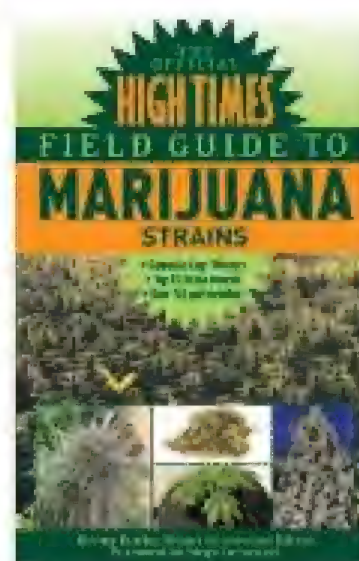


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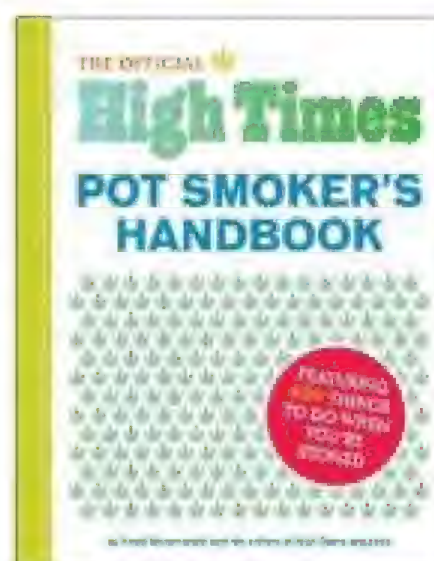
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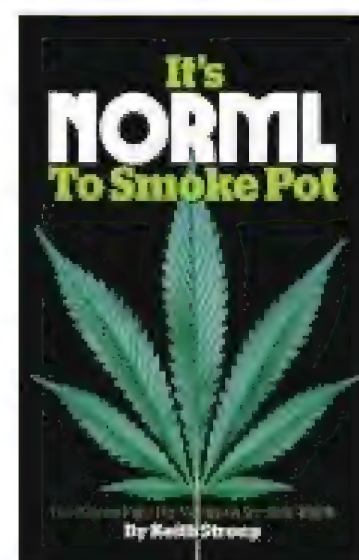
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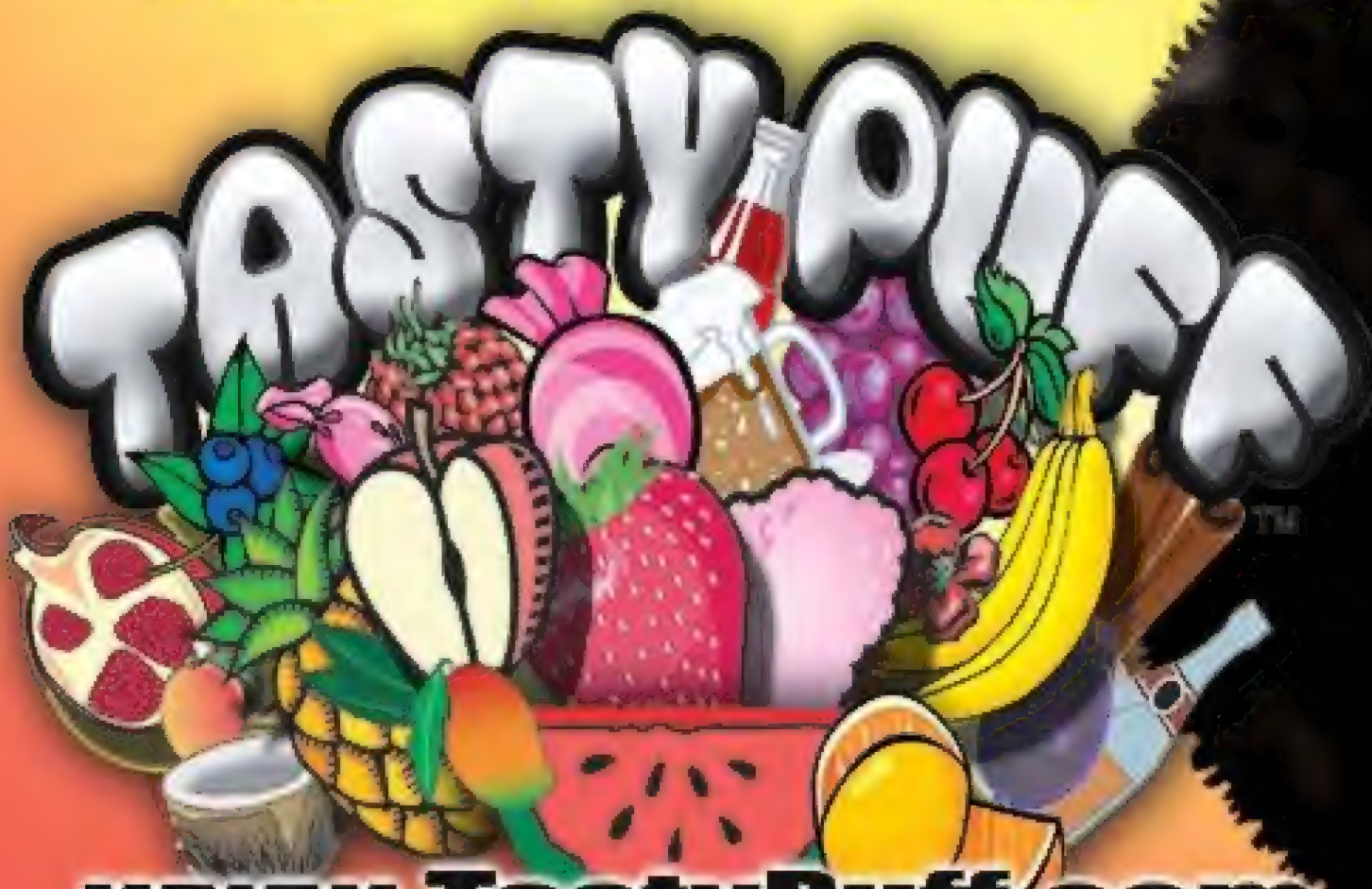
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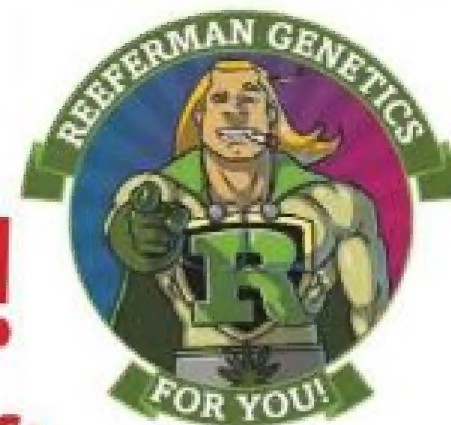
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